

## Biological Services Program

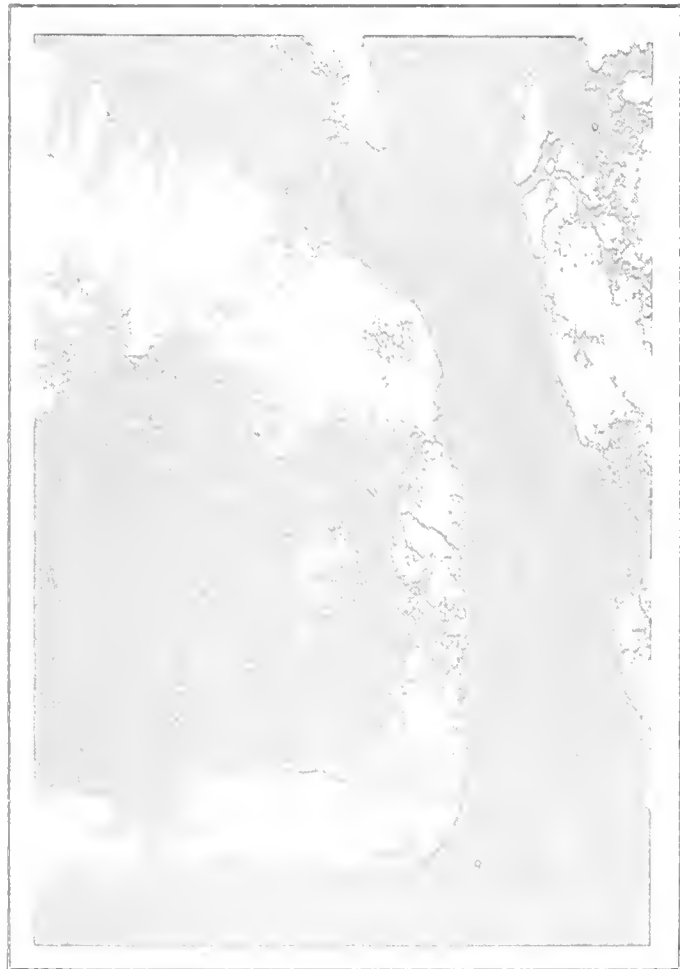
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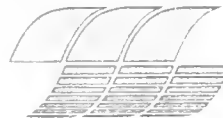
# An Ecological Characterization Study of the Chenier Plain Coastal Ecosystem of Louisiana and Texas

## VOLUME II APPENDIXES



*Interagency Energy-Environment Research and Development Program*

OFFICE OF RESEARCH AND DEVELOPMENT  
U.S. ENVIRONMENTAL PROTECTION AGENCY



AND

Fish and Wildlife Service

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U.S. Department of the Interior

The Biological Services Program was established within the U.S. Fish and Wildlife Service to supply scientific information and methodologies on key environmental issues that impact fish and wildlife resources and their supporting ecosystems. The mission of the program is as follows:

- To strengthen the Fish and Wildlife Service in its role as a primary source of information on national fish and wildlife resources, particularly in respect to environmental impact assessment.
- To gather, analyze, and present information that will aid decisionmakers in the identification and resolution of problems associated with major changes in land and water use.
- To provide better ecological information and evaluation for Department of the Interior development programs, such as those relating to energy development.

Information developed by the Biological Services Program is intended for use in the planning and decisionmaking process to prevent or minimize the impact of development on fish and wildlife. Research activities and technical assistance services are based on analysis of the issues, a determination of the decisionmakers involved and their information needs, and an evaluation of the state of the art to identify information gaps and determine priorities. This is a strategy that will ensure that the products produced and disseminated are timely and useful.

Projects have been initiated in the following areas: coal extraction and conversion; power plants; geothermal, mineral, and oil-shale development; water resource analysis, including stream alterations and western water allocation; coastal ecosystems and Outer Continental Shelf development; and systems inventory, including National Wetland Inventory, habitat classification and analysis, and information transfer.

The Biological Services Program consists of the Office of Biological Services in Washington, D.C., which is responsible for overall planning and management; National Teams, which provide the Program's central scientific and technical expertise and arrange for contracting biological services studies with states, universities, consulting firms, and others; Regional Staff, who provide a link to problems at the operating level; and staff at certain Fish and Wildlife Service research facilities, who conduct in-house research studies.

*Cover photo: Lloyd Poissenot, Louisiana Wildlife & Fisheries Commission.*

AN ECOLOGICAL CHARACTERIZATION STUDY  
OF THE CHENIER PLAIN COASTAL ECOSYSTEM  
OF LOUISIANA AND TEXAS

VOLUME II

APPENDIXES

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# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

National Coastal Ecosystems Team  
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(CEO-234)

Dear Colleague:

The attached three volume report, "An Ecological Characterization Study of the Chenier Plain Coastal Ecosystem of Louisiana and Texas," is the result of a contract funded by the Environmental Protection Agency. This study was conducted to provide an information synthesis for use by coastal resource planners. The report emphasizes the functional relationships between resources and the environment within the Chenier Plain Region, and identifies linkages between socioeconomic and ecological systems.

Any comments about the contents, or usefulness of this report will be appreciated.

Sincerely yours,

Robert E. Stewart, Jr.  
Team Leader



## PREFACE

The purpose of this ecological characterization was to compile existing information about the biological, physical, and social sciences for the Chenier Plain of Louisiana and Texas. Decisionmakers, among others, may use this report for coastal planning and management. This is the first in a series of characterizations of coastal ecosystems that will be produced by the U.S. Fish and Wildlife Service. Future studies will include the sea islands of Georgia and South Carolina, the rocky coast of Maine, the coast of northern and central California, the Pacific Northwest (Oregon and Washington), the Mississippi deltaic plain, and the Texas barrier islands.

Funding for this study was provided through the Interagency Energy/Environment Research and Development Program, which is planned and coordinated by the Environmental Protection Agency Office of Energy, Minerals, and Industry. Inaugurated in FY75, this program serves to coordinate the efforts of 77 Federal agencies and departments to provide environmental data and technology for the protection of natural resources which may be threatened by the development of domestic energy sources.

Any suggestions or questions regarding this publication should be directed to:

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This report should be cited:

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# **An Ecological Characterization Study of the Chenier Plain Coastal Ecosystem of Louisiana and Texas**

## **6.0 INTRODUCTION**

An ecological system or ecosystem is a complex of plants and animals interacting with one another and with their habitat or physical environment. Man, too, is an integral part of the ecosystem and his actions and activities influence, and are influenced by, other processes and components. Only when man understands how ecosystems operate will he be able to improve his management of natural resources and guide developments generated by his social and economic systems.

An ecological characterization study describes the important components and processes of an ecosystem and provides an understanding of their interrelationships by synthesizing and integrating existing physical, biological, and socioeconomic information. The main purpose is to provide an information base to aid in evaluating human impacts on the ecosystem and to provide an ecological framework for guiding resource management and coastal planning.

The Chenier Plain in southwestern Louisiana and southeastern Texas is a relatively large coastal ecosystem created by 5,000 years of sediment deposition from the Mississippi River. This ecosystem was selected for study because of its biological diversity, valuable fish and wildlife resources, and its proximity to actual and proposed oil and gas production activities.

The contents of the Chenier Plain Ecological Characterization are organized into three volumes. Volume I is a narrative report containing a description and analysis of climatic, geomorphic, and functional processes that formed, or are changing, the Chenier Plain ecosystem. Descriptions of the drainage basins, habitats, and some of the most important animal species are presented.

Volume II (Appendixes), in five parts, generally is a continuation of the elements of Volume I. Part 6.1 contains geological, hydrological, meteorological, chemical, biological, and socioeconomic data sources. Part 6.2 describes socioeconomic, oil and gas production, agricultural values, sport and commercial fisheries, fur trapping, and waterborne transportation. Part 6.3 gives biological information about primary production, waterfowl, fishes, and a habitat/species list. Part 6.4 contains data about water discharges, phosphorus levels, and habitat changes. Literature sources for the appendixes are listed in Part 6.5.

Volume III (Atlas) consists of the following eleven plates (maps):

1. Plates 1A and 1B—Index Maps
2. Plate 2—The Pleistocene Erosional Surface
3. Plates 3A and 3B—Chenier Plain Habitat Groups
4. Plates 4A and 4B—Chenier Plain Wetland Habitats
5. Plates 5A and 5B—Canals and Point Source Discharges
6. Plates 6A and 6B—Special Features (bird-nesting colonies, archeological sites, refuges and oyster reefs)

The letter "A" denotes the western portion of the Chenier Plain, and "B" denotes the eastern portion.

The Chenier Plain Characterization is intended for users having a moderate understanding of socioeconomic and ecological principles, and a concern about resource management or coastal planning problems.

# APPENDIX 6.1. CHENIER PLAIN DATA SOURCES

The following table contains an annotated list of ecological studies in the Chenier Plain region, both published and unpublished. In general, the list is confined to primary data sources, as contrasted to reports that summarize data from other reports. However, some of the latter are included, where they appear to be particularly useful. The references are listed alphabetically within each major subject area. Complete citations to published works are listed in Appendix 6.5.

Appendix 6.1(1). Chenier Plain data sources - geology, geography, and physiography.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Anderson and Clark 1977	Shoreline Changes	Nearshore Gulf, Beach, Galveston County, Texas	Published	Variable			
Bartlett 1971	Sedimentology, Hydrology, and Water Quality	Louisiana Coast	Published 1968-1969			Monthly	
Benfield 1976	Shell Dredging, Oyster Fishery	Reefs and Inland Open Water	Published		Varies		
Epsey, Huaton and Assoc. 1976	Dredged Material Placement; Navigation Development	Wetlands, Canals	Published		Every 2 miles on dredged waterways - varies		Dredging frequency and disposal statistics of major channels and canals (quality and quantity).
Ferry 1965	Beach Erosion	Nearshore Gulf, Beach, Marsh, Bolivar Pass Area	Published Abstract Paper unpubl.	Intermittent 1930-1961	2	Intermittent (from maps)	Paper on effects of Hurricane Carla presented at Geological Society of America Meeting in 1965.
Hill and Masch 1969	Shell Dredging	Reefs	Published				Wave heights in Near-shore Gulf
Jaworski 1971	Shoreline Change	Texas Chenier Plain	Published				
Masch 1967	Shell Dredging	Reefs	Published				
Morgan and Larimore 1957	Shoreline Changes	Nearshore Gulf, Beach, Marsh Louisiana Coast	Published	1932-1954	108 in Chenier Plain	2 time periods 1932 and 1954 (from photos)	
Morton 1975	Shoreline Changes	Texas Chenier Plain	Published				

continued

# Appendix 6.1(1). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Nichols, N. G.	Depth to Pleistocene Surface	Wetland Habitats	Privileged	1	>100	Single temporal Louisiana only	
Seeling and Sorensen 1973	Shoreline Changes	Nearshore Gulf, Beach, Marsh Texas Coast	Published	Variable	54 in Chenier Plain (from maps)	2 time periods	
Texas General Land Office 1978	Maps	Texas Coast Baye, Lakes, Islands	Unpublished (see Literature Cited)				State-owned tracts plotted on 7 1/2 minute USGS maps and reduced to 8 1/2 by 11
U.S. Bureau of Mines 1965	Mineral Inventory (survey)	Sabine Basin	Published				
U.S. Geological Survey	Orthophoto Quads.		Advanced	1974	46 in ls. portion of Chenier Plain		Scale 1:24,000 used as base maps for Habitat Inventory
U.S. Geological Survey	Topographic Sheets		Published	Variable	91 maps for Chenier Plain Area		Used as base maps. Scale 1:24,000 for Habitat Inventory
U.S. Soil Conservation Service 1935	Soil Types	Coastal Wetlands and Barrier Islands Galveston County	Published				
U.S. Soil Conservation Service 1965	Land Use, Soil Types	Texas Chenier Plain	Published				
U.S. Soil Conservation Service 1975	Erosion Control	Gulf and Bay Shorelines	Published				

continued

# Appendix 6.1(1). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
U.S. Soil Conservation Service 1976	Soil Types	Marsh, Rangeland, Bays, Published Chambers County	Published				
U.S. Soil Conservation Service 1977	Soil Surveys	Texas Chenier Plain	Published				Mapped data (soil types)

# Appendix 6.1(2). Chenier Plain data sources - hydrology.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Barrett 1970	Accrage of Water Bodies	Coastal Louisiana	LWF Report				
Brandes, R. J. et al. 1975	Hydrologic Model	Sabine Lake	Published				
Bureau of Commercial Fisheries 1969	Hydrography	Galveston Bay	Published	Varies	Varies		
Forrest and Cotten, Inc. 1958	Hydrologic	Sabine River	Published				
Forrest and Cotten, Inc. 1960	Hydrology	Sabine River Watershed	Unpublished (See Literature Cited)				
Forrest and Cotten, Inc. 1962	Hydrologic	Sabine River	Published				
Forrest and Cotten, Inc. 1963	Hydrologic	Sabine River	Published				
Forrest and Cotten, Inc. 1967	Hydrologic	Sabine River	Published				
<sup>1</sup> National Oceanic and Atmospheric Administration	Water Level	Nearshore Gulf Open Water	Through Agency		1	Continuous	
Prather, S. H. and R. M. Sorenson 1972	Tidal Pass Stability	Rollover Fish Pass, Bolivar Peninsula	Published				
Sabine River Authorities of Texas and Louisiana 1963	Hydrology	Sabine Basin	Published				

continued

# Appendix 6.1(2). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Texas Water Development Board 1973	Fresh Water Inflows	Galveston Bay	Published				
Texas Water Development Board 1977	Hydrologic; Surface and Ground Water	Each River Basin in Texas	Published	Various	Varies	Varies	
Tracor, Inc. 1971	Hydrology and Water Quality Modeling	Galveston Bay	Published				
U.S. Army Corps of Engineers, New Orleans Dist.	Water Level	Open Water and Major Streams	Through Agency and State	1929-present variable with station	11	Continuous	Many Data Caps
U.S. Army Corps of Engineers 1968	Hydrology	Sabine River	Published				
U.S. Economic Development Administration 1972	Hydrology	Sabine Basin	Published				
U.S. National Marine Fisheries Service 1971	Hydrology Water Quality	Galveston Bay	Published	107	Varies	Monthly	
U.S. Soil Conservation Service 1954	Water Management	Sabine, Nechea, Calcasieu, and Mermentau River Basins	Unpublished (see Literature Cited)				
Wax, C. L. 1977	Climate/Water level inter-relationships	Coastal Louisiana	LSU <sup>1</sup> Library Drost Abstracts, Ann Arbor, MI				Analysis of water level gauge records from U.S.A.C.

# Appendix 6.1(3). Chenier Plain data sources - meteorology.

Data Source	Type of Information	Sire and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Cry 1965	Hurricanes 1872-1964		Published	Summary of all Hurricanes in North Atlantic 1872-1964	1	Summary of Published Data	Published References
Hc and McLaughlin 1976	Solar Radiation, Cloud Cover		Published	1951-1975	1	Summary of Published Data	
Muller and Larimore 1975	Water Budget		Published	1941-1970	All in Louisiana	Summary of Published Data	
National Weather Service, U.S. Department of Commerce	Freeze Days		Environmental Data Service Asheville, N.C.	Variable with Station	6	Reported Daily	Second Order Stations
National Weather Service, U.S. Department of Commerce	Temperature and Precipitation		Environmental Data Service Asheville, N.C.	Variable with Station	15	Reported Daily	Second Order Stations
National Weather Service, U.S. Department of Commerce	Freeze Days		Environmental Data Service Asheville, N.C.	1941-1970	16	30 yr Summary	
National Weather Service, U.S. Department of Commerce	Temperature and Precipitation	Lake Charles Louisiana	Environmental Data Service Asheville, N.C.	1941-present	1	3-Hourly	First Order Station
National Weather Service, U.S. Department of Commerce	Adjusted Pao Evaporation	Catfish Point, Louisiana	Environmental Data Service Asheville, N.C.	1952-present	1	Daily	Location: Catfish Point, Louisiana
Bureau Land Management, USDI 1974	Hurricanes		EIS	1965-75	Hurricane Paths Plotted on Map	3-Hourly	Reference Cited Section
Wax 1976	Synoptic Climatology of Lake Charles Louisiana		Through Author Unpublished	1971-1974	1	3-Hourly	Reference Cited Section

# Appendix 6.1(4). Chenier Plain data sources - chemistry.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling Method and Other Comments
Blank, A.L. Stanton 1973	Water Quality	Sabine River	Published		Various	Monthly	
Brubacher et al. 1973	Chemical Properties of Soil	Louisiana Wetlands	Published	Aug. 7-Aug 22, 1968	366 samples	Once	Same Sample Sites as Chabreck's Vegetation Samples
Diener 1975	Water Chemistry Land Use	Texas Chenier Plateau	Published	Various	Many	Various	Compilation of Data from Many Sources
Domigou et al. 1975	Point Source Discharges, Water Quality	All Chenier Plain Basins in Louisiana	Published	Secondary Data			
Hollman (n.d.)	Water Quality	Sabine River	Published				
Huston 1974	Water Quality	Galveston Bay	Published		5 segments		3 Stations in East Bay
Louisiana Department of Public Works 1969-1974	Water Availability and Water Quality	Whole Louisiana by Parish	Published	Secondary Data			
Louisiana State Department of Health 1972	Oyster and Water Quality	Calcasieu Lake	Published	1971	25	2 times over 1 week	
Louisiana State Planning Office 1975	Land Use	All Louisiana Parishes	Published				Land Use by Parish
Louisiana Wildlife and Fisheries Commission (n.d.)	Water Quality	Inland Open Water Nearshore Gulf	Privileged	Variable	Many	Variable	

continued

# Appendix 6.1(4). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
McCarley 1975	Water Quality	Sabine River	Published				
Shapiro 1971	Drainage Area and Discharges	Sabine Louisiana	Published	Secondary Data			
Sloss 1971	Water Quality	Major Lakes, Louisiana	Published	Various			
Storet (EPA)	Water Quality	Louisiana and Texas	Storet	Many	Many	Various	Water Quality Data from Many Sources
Texas Department of Health Resources Estuarine Water Quality Survey	Water Quality	Texas Coast	Unpublished Available through Agency	1958 to present	16 in Sabine L. 16 in East Bay		Contact: Richard Thompson, Dept. of Health Resources, Austin, Texas 512/458-7510
Texas State Department of Health 1959	Hydrology Water Quality	Sabine and Neches Rivers	Published				
Texas State Department of Health 1968	Water Quality	Galveston Bay	Published	Over 4	180	Monthly	B Stations in East Bay
Texas Univ. Ctr. for Research in Water Quality Resources 1964	Historic Data Water Quality	East Bay	Published	Varies, Days to 23 years (1951-1964)	4 to 25	Varies	Summarizes Measurements by Various Agencies
Texas Water Development Board 1975	Nutrient Exchange	Sabine Basin Bayou, Marsh, Canals	Published		5	Hourly	
Texas Water Quality Board 1970	Water Quality	East Bay	Published				

continued

# Appendix 6.1(4). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Texas Water Quality Board 1974	Water Quality	Sabine River	Published				
Univ. of Tex. Mar. Sci. Inst. 1973	Toxicity, Freshwater Inflows, Photosynthesis	Galveston and East Bays	Published	2	5	Varies	One Station in East Bay
U.S. Army Corps of Engineers, New Orleans District	Salinity	Inland Open Water Nearshore Gulf	Through Agency	Variable with Station	Many	Continuous to Annual	Many Data Gaps
U.S. Army Corps of Engineers, New Orleans District	Salinity	Inland Open Water Nearshore Gulf	Through Agency	Variable with Station		Daily	Many Data Gaps
U.S. Army Corps of Engineers, New Orleans District	Salinity	Inland Open Water Nearshore Gulf	Through Agency	Variable with Station		Weekly to Annual	
U.S. Environmental Protection Agency 1972	Point Source	Calcasieu Basin	Published	1971	Variable	Once	
U.S. Geological Survey 1977 (and earlier years)	River Discharge	All Major Streams in Louisiana	Published	1935 to present	Variable	Continuous to Monthly	
U.S. Public Health Service 1952	Water Quality	Sabine Basin	Published				

continued

# Appendix 6.1(4). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Weston, K. F., Inc. 1974	Point Source Discharge	Calcasieu Basin	Published		Various		Much Data from USGS 1971 and EPA 1972
Woolf and Vidrine 1976	Agricultural	Southwest Louisiana	Published				Primary Economic Data

Appendix 6.1(5). Chenier Plain data sources - biology - multiple species.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Louisiana Department of Wildlife and Fisheries, 1975 and earlier	Biological Information	Louisiana Coast	Published	Varied			Biannual Reports
Texas Parks and Wildlife Department	Biological Information	Texas Coast	Coastal Fisheries Project Reports; Available Through Agency	1959 to present	10 in East Bay	Monthly	
Texas System of Natural Laboratories, Inc Austin, Texas	Biological, Socioeconomic and Related Information	36 Coastal Counties, Texas	Unpublished Available from Agency				Reports and Charts for 1200 Spp. of Mollusca, Sea Grasses, Algae, Grasses, Archeology, etc.

Appendix 6.1(6). Chenier Plain data sources - biology - wetland flora.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Adams 1956.	Vegetative Composition	Rockefeller Wildlife Refuge	LSU <sup>1</sup> Library (Microfilm)				
Chabreck 1960	Vegetative Composition	Rockefeller Wildlife Refuge	Published	1959	753	Once	Line Transects
Chabreck 1960	Species Present Relative Abundance	Rockefeller Wildlife Refuge Wetland	Most in pub- lished. Unpub- lished - privileged. Source: Author, School of Forestry, LSU	1967	15 Aerial Transects	Single Temporal	Transects are at 7.5 <sup>+</sup> Long. Intervals. Ground Sampling at 2 Mile N-S Intervals.
Chabreck 1968a	Cattle and Marsh Vegetation	Marsh Island	Published	Began 1958	19	August of each year	8 Transects per Station
Chabreck et al. 1968b	Changes in Vegetation after Impoundment	Louisiana Wetlands	Published			Review of Data	
Chabreck 1970, 1972	Plant Species Com- position and Vegetative Coverage	Entire Louisiana Coast	Ph.D. Dissertation, LSU Library <sup>1</sup> and published (1972)	August 1968	39 Transects	Once	
Dodd and Webb 1975	Shoreline Stabiliza- tion with Vegetation	East Bay	Published				
Farlow 1976	Plant Species	Intermediate Marsh North of Mermentau River	Ph.D. Dissertation LSU Library <sup>1</sup>	1974-1975	2 Plots		
Hoffpauir 1961	Vegetation Density (Dry Weight, Moisture, No. Stems)	Rockefeller Wildlife Refuge	Published	October 1960- February 1961			Measuring Effects of Marsh Land Flows

<sup>1</sup> Louisiana State University

# Appendix 6.1(6). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Hoffpauir 1968	Effect of Burrowing on Vegetation Composition		Published				Review of Data
NASA, Sliedell, La.	Species Present Relative Abundance	Wetland Habitats	Through Agency	1975-1976	42	Single Temporal Study	Louisiana Only
Palmisano 1967	Growth Requirements Vegetative Composition	Cameron Parish & Rockefeller Wildlife Refuge	M.S. in LSU <sup>1</sup> Library	June 1965-June 1967	3 in Chenier Plain		Field and Laboratory Work
Palmisano 1970	Ecological Factors Influencing Distribution of Marsh Plants	Coastal Louisiana	Ph.D. in LSU <sup>1</sup> Library and Dissertation Abstract	1967	3 in Chenier Plain	Once	40 Total Transects to State
Perry et al. 1970	Vegetative Composition	Rockefeller Wildlife Refuge	Published	1958-1969			
Rosa 1972	Survival and Growth Factors of <i>S. olneyi</i>	Rockefeller Wildlife Refuge	M.S. in LSU Library	Feb. 1971-June 1972	Various	Various	Tank Studies - Plots Established in Various Marsh Types and to Various Treated Areas - Also Feeding Experiments with Nutrients
Singleton 1948	Waterfowl Food Plant Production, Waterfowl Food Habits	East Texas Gulf Coast	Texas A&M Library				
Soileau 1968	Vegetative Response to Various Treatments	Price Lake Area of Rockefeller Wildlife Refuge	M.S. in LSU <sup>1</sup> Library	Nov. 1966-1968	112 plots	Quarterly	

<sup>1</sup> Louisiana State University

continued

# Appendix 6.1(6). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Spindler and Noble 1974	Fall Vegetation	Spoil Bank Grand Chenier	Published	1973	270	September October	Circular Plots
U.S. Fish and Wildlife Service	Plant Succession After Mortalities Due to Hurricane Audrey	Fresh-Intermediate Marsh	Through Laccasine National Wildlife Refuge or J. Valentine USFWS, Lafayette, La.	1958-1972	3	11 times	Aerial Transects
U.S. Soil Conservation Service 1972	Species Present Relative Abundance	Wetland	Through Agency	1	57	Single Temporal Study	Cameron-Creole Watershed Project

Appendix 6.1(7). Chenier Plain data sources - biology - plankton and benthic algae.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Denoux 1976	Biomass of Phytoplankton and Zooplankton	Inland Open Water Nearshore Gulf	M.S. Thesis LSU Library	1.5	10	8 times/year	
Gillespie 1971	Species Relative Abundance Seasonal Distribution of Zooplankton	Inland Open Water and Nearshore Gulf of Louisiana	Published	April 1968 - March 1969	28	Monthly	
Kaprau 1974	Benthic Marine Algae	Inland Open Water and Nearshore Gulf					
Louisiana Department of Wildlife and Fisheries	Trawl Samples and Net Samples	Inland Open Water and Nearshore Gulf of Louisiana	Through Agency Unpublished Data		Varies		

<sup>1</sup> Louisiana State University

Appendix 6.1(8). Chenier Plain data sources - biology - invertebrates.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Adkins, G. 1972	Blue Crab, Salinity Ranges, Habitat Description, Bottom Type, Food, Population Dynamics	Wetland, Inland Open Water, Near-shore Gulf	Published-- Data Included	1	22	Monthly	Otter Trawl, Plankton
Conner 1977	The Crab Harvest by Basin (1977)	Wetland, Inland Open Water, Near-shore Gulf	Unpublished-- Available thru Author, GWR, <sup>1</sup> LSU <sup>2</sup>	0			Literature Review
Dugas 1973	Species Composition and Distribution of Blue Crabs in SW Louisiana (1973)	Wetland, Inland Open Water, Near-shore Gulf	Unpublished, Available thru LDWF	1/2	14	Random	Digging, by Hand, Seine, Dip Net
Gary 1974	Crawfish Distributions, Historical, Habitat, Lifecycle, Aquaculture, Socioeconomic Factors, Processing	Wetlands	Published				
Hofstetter 1977	Crawfish Distributions Oyster Biology	Wetlands Galveston Bay	Published	11	Varies	Varies	
Louisiana Department of Wildlife and Fisheries	Shrimp (including statewide salinity and temperature)	Inland Open Water Nearshore Gulf	Privileged Through Agency	1966-	8	Variable Monthly Spring and Fall	Statewide: Trawl

<sup>1</sup> Center for Wetland Resources

<sup>2</sup> Louisiana State University

continued

# Appendix 6.1(8). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling Method and Other Comments
Louisiana Department of Wildlife and Fisheries, Oyster Division	Oyster Location	Inland Open Water	Privileged Through Agency	1976	5	1	Survey of Calcasieu Lake
U.S. Nat. Marine Fisheries Service, U.S. Dept. of Commerce	Gulf Coast Shrimp Data	Inland Open Water Nearshore Gulf	Through Agency	1959		Reported Monthly	By Inland Estuary and Offshore Zone
U.S. Nat. Marine Fisheries Service U.S. Dept. of Commerce	Gulf Coast Menhaden Data	Inland Open Water Nearshore Gulf	Through Agency	1952-1972		Reported Monthly	
Parker 1970	Brown Shrimp Distribution	Galveston Bay	Published				Related to Salinity and Hydrography
Penn 1959	General Crawfish	Wetlands	Published	Unknown	NA	Unknown	Seine, Traps, Dip Net
Texas Parks and Wildlife Department	Oyster Location	Inland Open Water	Privileged Through Agency	20	4	Variable	Survey Includes all of East Bay
U.S. Environmental Protection Agency 1971	Shellfish Pollution	Galveston Bay	Published	Varies 1-10	Varies	Monthly to Annually	

Appendix 6.1(9). Chenier Plain data sources - biology - herpetofauna.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling Method and Other Comments
Chabreck 1966	Size and Composition of Alligator Population	Wetland Rockefeller Wildlife Refuge	Published				Observations
Chabreck 1965	Alligator Movements	Wetland Rockefeller Wildlife Refuge	Published	1962			Found Several Animals Suffocated Due to Freeze up in Marsh
Chabreck 1971	Alligator Foods and Feeding Habits	Fresh and Salt Marsh Rockefeller Wildlife Refuge	Published	August 1967		Once	Analysis of Stomach Contents
Chabreck 1973	Temperature Variation in Alligator Nests	Wetland Rockefeller Wildlife Refuge	Published	1961-1968	3 nests	Continuous	Thermometer
Dundee, H. A. and D. A. Roseman	Point Records of Reptiles	Various, All Habitats	Privileged, through authors at Dept. of Zoology, LSU <sup>1</sup> and Dept. of Biology, UNO <sup>2</sup>	50			
Giles and Childs 1949	Alligator Food Habits	Wetland Sabine National Wildlife Refuge	Published				Stomach Analyses
Joanen 1969	Alligator Nesting Ecology	Wetland Rockefeller Wildlife Refuge	Published	1964-1968	11 nests		Observations

<sup>1</sup> Louisiana State University

<sup>2</sup> University of New Orleans

continued

# Appendix 6.1(9). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Joanen and McNease 1970	Distribution and Movement of Nesting Female Alligators	Wetland Rockefeller Wildlife Refuge	Published	18 May 1969 - 10 November 1969	5 animals	411 fixes on 118 days	Radio Telemetry
Joanen and McNease 1971	Captive Propagation of Alligators	Wetland Rockefeller Wildlife Refuge	Published				Observations
Joanen and McNease 1972a	Distribution and Movement of Adult Male Alligators	Wetland Rockefeller Wildlife Refuge	Published	14 April 1971- 18 March 1972	14 animals	569 fixes 339 days	Radio Telemetry
Joanen and McNease 1972b	Salinity Tolerance of Young Alligators	Wetland Rockefeller Wildlife Refuge	Published				Observations
Joanen et al. 1974	Alligator Harvest Analysis and Population Estimates	Wetland Rockefeller Wildlife Refuge	Unpublished (See Lit. Cited)	1970-1974		Yearly	Nest Counts by Air Transects
Joanen and McNease 1975	Reproductive Biology and Captive Propagation of Alligators	Wetland Rockefeller Wildlife Refuge	Published	4.5 years 1969 thru 1974	26 animals		Observations
Joanen and McNease 1976	Alligator Culture in Controlled Chambers	Rockefeller Wildlife Refuge	Published				
La. Dept. of Wildlife and Fisheries	Alligator Nest Survey	Wetland Rockefeller Wildlife Refuge	Privileged, See Lindcumbe LDWF <sup>1</sup>	5	29 aerial	1	Transects Every 3.75' Longitude

<sup>1</sup> Louisiana Department of Wildlife and Fisheries

continued

# Appendix 6.1(9). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
La. Dept. of Wildlife and Fisheries 1966-1967	Bullfrog Habitat Description	Wetlands	Published Data Included	One	Random	Unknown	By Hand or Snare
La. Dept. of Wildlife and Fisheries	Alligator Population Estimate	Wetland	Unpublished Available from Joanen, LDWF <sup>1</sup>	1975			Neat Counts by Air Transaecta
McNease and Joanen 1974	Distribution and Movements of Immature Alligators	Wetland Rockefeller Wildlife Refuge	Published	27 March 1973-5 March 1974	30 animals on 148 days	1,100 fixed	Radio Telemetry
Palmisano et al. 1973	Alligator Harvest Analysis and Population Estimates	Wetland	Published	1970, 1972			
Reggio 1967	Bullfrog Food, Pigfrog Food Requirements	Wetlands	Unpublished Available thru LSU Library	Unknown		Random	Caught by Hand or Snare
Valentine et al. 1972	Alligator Food Habits	Wetland Sabine National Wildlife Refuge	Published				Stomach Analysis

<sup>1</sup> Louisiana Department of Wildlife and Fisheries

Appendix 6.1(10). Chenier Plain data sources - biology - fish.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Arnold et al. 1960	Fish and Other Biora	East Lagoon and Galveston Island, Texas	Published				
Christmas and Etzold 1977	Menhaden Management Plan	Gulf of Mexico	Published				
Conner and Truesdale 1973	Fish Abundance Catch/Effort	Trinity River Delta	Published	March 1966-February 1969	17	Twice Monthly	
Copeland and Bechtel 1971	Fish Environmental Limits	Galveston Bay	Published				
Fore 1970	Menhaden Spawning	Offshore	Published				
Galloway and Strawn 1974	Fish Seasonal Abundance and Distribution	Galveston Bay	Published				Sampled at a Hot Water Discharge
Gunter 1945	Fish Numbers, Species, Mass Distribution, Seasonal Cycles, Reaction to Salinity	Coparo Bay, Aransas Bay, and Gulf of Mexico, Texas Area	Published	April 1941 - August 1942	31	Monthly	
Gunter and Shell 1958	Fish Distribution	Mermentau River Basin, Grand Lake, White Lake and Little Bay	Published	September 1951 - June 1953	8	Every 3 to 5 Months	Trawl and Minnow Seine
Herke 1968	Effects of Weirs on Fishes and Crustaceans	Grand Bayou	Published	January 1971 - June 1971	10	Monthly	Surface Trawl, Otter Trawl, Trammel Net, Rotenone, Crab Traps

continued

# Appendix 6.1(10). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Herke 1971	Use of Natural and Semi-impounded Marshes as Fish and Crustacean Nurseries	Marsh Island	Ph.D. LSU <sup>1</sup> Library and Dissertation Abstracts	May 1967-February 1968	2	Monthly	
Kroger and Pfister 1975	Menhaden Migrations	Offshore	Published				
Lindall et al. 1972	Fishery Data by Hydrologic Unit	Louisiana Coastal Zone	Published				Review of Data
Matlock and Weaver 1978	Fish Abundance	Inland Open Water, Near-shore Gulf	Published	5 months	11 in East Bay, 3 in Sabine Lake		
Moore et al. 1970	Relative Abundance, Seasonal Distribution, Species Composition of Fish	Offshore La. and Texas	Published				
Parker 1965	Fish Checklist	Galveston Bay	Published				
Perret et al. 1971	Distributions	Louisiana Estuaries	Published	1	122	Monthly, some bi-weekly	Otter Trawl, Beach Seine
Perry 1976	Standing Crops	Rockefeller Wildlife Refuge	Published				
Perry 1976	Fish Populations	Rockefeller Wildlife Refuge	Published	5	12	Single Temporal Study	Rotenone and Trawl Sampling

<sup>1</sup> Louisiana State University

continued

# Appendix 6.1(10). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling Method and Other Comments
Reid 1955	Species and Numbers of Fish Length-Frequency Distributions	East Bay, Texas	Published	June 1954-July 1954			Otter Trawl, Minnow Seine, Bag Seine
Reid 1956	Fish Populations	East Bay, Texas	Published	June 1955			78 Collections with Otter Trawl, 3 with Trammel Net, 18 with Minnow Bag
Reid et al. 1956	Food Habits of Fish	East Bay, Texas	Published				
Stickie et al. 1975	Fish Populations	Nearshore Gulf	Privileged - Through Author, Dept. of Zoology, LSU <sup>1</sup>	1	10	6	
Texas Game, Fish, and Oyster Commission 1932	Fishes of Texas	Texas	Published				
Texas Parks and Wildlife Dept. 1973	Research and Management Program	Texas	Published				
Texas Parks and Wildlife Dept. 1975	Fishery Resource	Galveston Bay Oyster Reefs and Marshes	Published				
Turner 1966	Distribution and Abundance of Fishes	Lacassine and Sabine Natl. Wildlife Refuges	LSU Library	September 1964-May 1966	6		Electrical Shocking Mechanism, Rotenone, Gill and Trammel Net

<sup>1</sup> Louisiana State University

Appendix 6.1(11). Chenier Plain data sources - biology - mammals.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Arwood 1950	Nutria Life History	Various	Published				
Kays 1956	Nutria Ecology	Wetlands	M.S. Thesis LSU Library	1			350 Nutria Captured at Price Lake, La.
Lowery 1974b	Life Histories, Geographic Ranges of all Mammal Species		Published				
Murry 1970	Deer, Squirrel	Various	Available Through R. Murry Baton Rouge, La.				
O'Neill 1949	Muskrat Life History, Mostly Non-quantitative	Various	Published				
Palmisano 1972a	Muskrat Aerial House Counts and Waterfowl Surveys	Fresh Marsh Salt Marsh	Published	3	Chabreck's Transects	1 year	Aerial Counts
Palmisano 1972b	Muskrat Densities	Wetlands	Published	2.5	15 Aerial Transects	2 year	
Texas Parks and Wildlife, Dept.	Muskrat Densities	Wetlands	Through Agency	2	12 Aerial Transects	1 year	Murphree Wildlife Mgmt. Area Compartmentalized for Study

1 Louisiana State University

Appendix 6.1(12). Chenier Plain data sources - biology - birds.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Able 1972	Magnitude, Timing and Direction of Fall Passerine Bird Migration		Published	3 months	1	Nightly	Radar
Audubon Christmas Bird Counts	Species Present	Wetland, Upland	Published	77	4	Single Temporal Study	
Chabreck 1962	Waterfowl Population and Use of Impoundments	Rockefeller Wildlife Refuge	Published				Review of Rockefeller Impoundment Use
Chabreck et al. 1974	Canada Geese	Rockefeller Wildlife Refuge	Published	1960-1973	4 Enclosures		Looked at Nesting
Gauthreaux, S.A. 1971	Magnitude, Timing and Direction of Fall Passerine Bird Migration		Published	3 months	1	Nightly	Radar
Glasgow and Bardwell 1962	Teal Food Habits	Wetland Ridge	Published	1	None		
Glasgow and Junca 1962	Mallard Food Habits	Wetland Ridge	Published	1	None		
Glazner 1946	Food Habits of Geese	Texas Gulf Coast	Published	1939-1943	117 Gizzards		Also includes Field Data
Harmon et al. 1960	Waterfowl Foods	Rice Fields of Southwest Louisiana	Published	Nov. 1958-Feb. 1959	9 Farms	Once a Month for 3 Months	20 Samples per Field
Kimble and Ensminger 1959	Duck Food Following Hurricane	Southwest Louisiana Marshes	Published				

continued

# Appendix 6.1(12). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
La. Dept. of Wildlife and Fisheries, New Orleans, La.	Aerial Waterfowl Counts	Wetland Agriculture	Privileged Available from H. Bateman	8	15 Aerial Transects		Transects Same as as Chabreck (1968)
La. Dept. of Wildlife and Fisheries, 1961	Waterfowl Populations	Louisiana Wetlands	Published				
La. Wildlife and Fisheries Commission, New Orleans, La.	Waterfowl Kill Surveys	Louisiana Coast	Available from Agency	1968-1974 1975-1976			
Lowery 1974a	Bird Life History, Distribution, Seasonal Patterns	All Habitats	Published				
McIntire et al. 1975	Landing Areas of Spring Trans-Gulf Migrants	Not Specific	Published	3	1 Lake Chares	Nightly	Radar
Murry 1970	Dove, Quail Information	Louisiana Coasts to CFW	Available through R. Murry				
Portnoy 1977	Hading Bird Rookeries	Louisiana Coasts to CFW	Published	1	15	Single Temporal Study	Stations = Rookeries
Rogers and Korschaer 1966	Foods of Lesser Scaups	1 Site Near Grand Chenier	Published	1959	17 Stomachs		

continued

Appendix 6.1(12). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling Method and Other Comments
Sanderson (ed) 1977	Migratory Shore and Upland Game Birds	Includes Chenier Plain	Published				
Schroer and Chabreck 1974	Snow Geese	Sabine and Anahuac National Wildlife Refuges	Published	Winter 1972-1973	1,592 Geese Banded		Visual Observations of Banded Geese

# Appendix 6.1(13). Chenier Plain data sources - socioeconomics.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Breuer et al. 1978	Sportfishing Catch and Effort	Sabine Lake	Published	1974-1975			
Corty 1972	Agriculture	Coastal Louisiana	Published				
Ffielder and Guy 1975	Agriculture	Louisiana	Published				
Heffernan et al. 1977	Sportfishing Catch and Effort	Galveston Bay	Published	1974-1975	Variable	26 Days each Quarter	
Holtzepple 1976	Archeological Sites	Sabine Pass Area	Published				
La. Dept. of Cons. 1977	Oil and Gas Extraction	Louisiana	Published	1974	By Field		
La. Dept. of Wildlife and Fisheries, New Orleans, La.	Fishing, Trapping, Hunting Licenses, Trapping Statistics	Louisiana	Available through Agency	Yearly			
La. State Parks and Recreation Commission, 1974	Parks, Golf Courses, Marinas, Boat Ramps, etc.	Louisiana	Maps Available through Agency	Current to 1974			Plotted on La. Highway Maps @ 1 inch = 2 miles
La. State Parks and Recreation Commission 1974	Sportfishing and Hunting Participation	Louisiana	Published				Telephone Survey

continued

# Appendix 6.1(13). Continued

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Lindell et al. 1972	Fishery Catch	Northern Gulf of Mexico by Grid Zone	Unpublished Available from USAF, NOD (See Lit. Cited)				
Melancon (ed) 1977	Oil and Gas Production	Louisiana	Published	1974	By Field		
Railroad Commission of Texas 1974 (and earlier)	Oil and Gas Extraction	Texas	Published	Annual	By County		
Smith, L. 1970	Economics	Galveston Bay	Published				
Texas State Dept. of Highways and Public Transportation 1976	Manufactures and Employers	Along GHW	Published				
Texas University Bureau of Business Research 1972	Resource	Galveston Bay	Published				
Texas Water Quality Board 1969	Land Use	East Bay Area	Published				
U.S. Army Corps of Engineers, New Orleans District, Fish and Wildlife Study	Comprehensive	Mississippi River Delta	Unpublished Available from Agency				

continued

# Appendix 6.1(13). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
U.S. Army Corps of Engineers 1976	Waterborne Transport	Gulf Coast	Published				Annual Summary
U.S. Department of Agriculture 1975a	Agricultural Economics	Louisiana and Texas	Published	1974	By Parish		
U.S. Department of Agriculture 1975b	Recreation Use/Demand	Texas River Basins	Published				
U.S. Department of Commerce 1973	Population	Louisiana and Texas	Published	1970	By Parish, and Subunits, Urban and Rural		
U.S. Department of Commerce 1975	Employment	Louisiana and Texas	Published	1973	By Parish		
U.S. Department of Commerce 1976a	Fishery Landings	Louisiana and Texas	Published	1975 and Earlier	By Estuary and Grid Zone		
U.S. Department of Commerce 1976b	Federal Spending	Louisiana	Published	1976	By Parish		

Appendix 6.1(14). Chenier Plain data sources - comprehensive studies impact analysis.

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling Method and Other Comments
Ecology and Environment, Inc. 1977	Vegetation Zones, Communities Soils	Sabine Pass Area	Published		10		Total Organic Carbon, Phosphorus, Nitrogen Analyses
Fisher et al. 1972, 1973	Land Use Water Quality	Marsh, Rangeland, Baya	Published				Contains Mapped Information Based on Varying Amount and Times of Data Acquisition
James et al. 1977	Water Quality	CIW, Texas	Published	3 months	15	Monthly: January, May, August	Heavy Metals, Water and Sediment Analyses
McGowan et al. 1977	Species Diversity, Sediment Analysis, Geochemical Mapping	Texas Bays and Nearshore Gulf	Published	3	3,197 Bays 3,500 Gulf		Comprehensive
Rice Center for Community Design and Research 1974	Environmental Analysis	Many Habitats	Published				Contains Lists of Species by Habitat
Southeast Fisheries Center, USDC, RFE, 1977	Environmental Assessment of Buceanear Oil Field	Nearshore Gulf	Unpublished	1-2	Varies	Daily and Monthly	
Texas General Land Office 1974	Annotated Bibliography Of Research	Varies	Published				
Texas Parks and Wildlife Dept. 1972	Park Plan	Marsh, Aquatic, Sabine Pass	Published				

continued

# Appendix 6.1(14). Concluded

Data Source	Type of Information	Site and Habitat Specificity	Availability	Years of Sampling	No. of Stations	Frequency of Sampling	Sampling method and Other Comments
Texas Water Development Board 1973	Hydrography Biology	Texas Bays	Published	Varies	By Bay		9 Stations East Bay Divided into Five Segments
Texas Water Quality Board 1970	Ecological	Galveston Bay	Published	1	Varies	Varies	
U.S. Army Corps of Engineers 1952	Navigation Channels	Sabine, Nechea Waterway	Published				
U.S. Army Corps of Engineers 1966, 1967	Land Use Hydrology	Sabine River Basin	Published				
U.S. Army Corps of Engineers 1975	Channelization Dredging	Marsh Spoil	Published				
U.S. Soil Conservation Service 1976a	Environmental Assessment	Marsh, Lake - Keith Lake Area	Published				
Wiersema et al. 1973	Ecological Study	Sabine River, Marsh, Spoil Banks	Published	10 months	11	Monthly	Seine, Trawl, Gill Net, Benthos, Plankton, Physical/Chemical Data

# APPENDIX 6.2 CHENIER PLAIN SOCIOECONOMIC DATA

Appendix 6.2(1). Louisiana oil and gas production  
from individual oil fields, by basin, in 1974 (Melancon 1977)

Basin and Field	1974 <sup>1</sup> Production <sup>1</sup>	<u>Inshore zone</u> Field Cumulative total
VERMILION		
<u>Nunez</u>		
Condensate <sup>1</sup>	—	348
Natural Gas	—	754,029
<u>Perry</u>		
Condensate	16,245	227,557
Natural Gas	2,478,261	35,930,267
<u>Perry, South</u>		
Condensate	—	10,496
Natural Gas	—	301,372
<u>Esther</u>		
Condensate	9,701	449,526
Natural Gas	898,001	33,200,066
<u>Esther, SW</u>		
Crude	—	2,547
Condensate	17,933	591,082
Natural Gas	1,908,839	56,801,503
<u>Theall</u>		
Condensate	7,820	588,446
Natural Gas	2,307,446	88,552,648
MERMENTAU		
<u>Chalkley, West</u>		
Condensate	—	432
Natural Gas	—	122,529
<u>Florence</u>		
Crude	22,321	158,723
Condensate	4,769	1,542,358
Casinghead Gas	10,255	82,889
Natural Gas	1,010,398	69,620,195
<u>Florence, East</u>		
Crude	—	62,268
Casinghead Gas	—	32,555
<u>Gueydan</u>		
Crude	422,493	31,390,259
Condensate	1,653	462,697
C.T.C.	—	17,409
Casinghead Gas	423,743	24,627,891
Natural Gas	210,450	19,813,280
<u>Gueydan, Southeast</u>		
Condensate	316,063	1,531,499
Natural Gas	9,598,575	67,360,218

continued

<sup>1</sup>Crude oil and condensate in barrels; natural gas, casinghead gas, and C.T.C.  
in mcf.

Basin and Field	1974 Production	<u>Inshore zone</u>	Field Cumulative total
<u>Gueydan, SW</u>			
Condensate	80,421		243,045
Natural Gas	3,759,853		11,487,289
<u>Gueydan, West</u>			
Crude	228,444		10,562,075
Condensate	399,585		2,378,005
C.T.C.	31,825		1,128,759
Casinghead Gas	265,331		25,996,664
Natural Gas	12,288,949		155,795,290
<u>Lacassine Refuge</u>			
Condensate	271,103		2,183,574
Natural Gas	4,278,718		29,570,891
<u>Lake Arthur, East</u>			
Condensate	—		22,255
C.T.C.	10,010		277,431
Natural Gas	920,285		19,963,440
<u>Lake Arthur, South</u>			
Condensate	238,293		1,263,790
C.T.C.	27,338		206,383
Natural Gas	15,607,190		73,669,355
<u>Lake Arthur, Southwest</u>			
Crude	33,949		147,254
Condensate	37,745		1,255,151
Casinghead Gas	40,369		277,438
Natural Gas	5,740,118		87,494,347
<u>Lake Arthur, West</u>			
Crude	10,088		884,192
Condensate	16,306		1,001,354
Casinghead Gas	2,049		853,361
Natural Gas	1,447,298		48,487,721
<u>Lakeside</u>			
Crude	—		441,941
Condensate	103,436		4,218,803
Casinghead Gas	—		745,842
Natural Gas	4,156,390		250,153,474
<u>Mulvey</u>			
Crude	3,949		450,067
Condensate	(64)		195,790
Casinghead Gas	130,888		1,046,784
Natural Gas	—		4,321,877
<u>Niceville</u>			
Crude	7,807		157,274
Condensate	—		37,536
C.T.C.	105,772		2,938,764
Casinghead Gas	4,776		365,697
Natural Gas	2,795,437		71,182,757
<u>Niceville, South</u>			
C.T.C.	—		6,551
Natural Gas	—		50,362

continued

Appendix 6.2(1). Continued

Basin and Field	1974 Production	<u>Inshore zone</u>	Field Cumulative total
<u>Sweet Lake, North</u>			
Crude	12,187		117,549
Condensate	8,882		54,122
Casinghead Gas	8,723		230,111
Natural Gas	64,038		439,008
<u>Thornville, South</u>			
Crude	—		48,185
Condensate	364,973		13,208,316
Casinghead Gas	—		277,868
Natural Gas	31,970,894		586,875,431
 CALCASIEU			
<u>Bayou Coupique</u>			
Crude	5,356		97,529
Condensate	—		33,795
Casinghead Gas	2,640		120,108
Natural Gas	—		3,364,495
<u>Lake Charles</u>			
Condensate	6,798		135,691
Natural Gas	294,411		5,654,835
<u>Lockport</u>			
Crude	267,477		30,660,658
Condensate	7,687		764,925
Casinghead Gas	254,362		14,443,688
Natural Gas	312,425		25,261,227

continued

Appendix 6.2(1). Continued

Basin and Field	1974 Production	<u>Intermediate zone</u> Field Cumulative total
<b>VERMILION</b>		
<u>Bancker</u>		
Crude	78,742	2,557,681
Condensate		175,698
Casinghead Gas	1,947	734,442
Natural Gas		10,139,807
<u>Buck Point</u>		
Condensate	187,200	4,067,904
Natural Gas	8,721,108	135,278,407
<u>Buck Point, East</u>		
Crude	14,096	2,181,215
Condensate	32,689	722,555
Casinghead Gas	14,840	6,069,889
Natural Gas	1,393,992	20,707,620
<u>Buck Point, North</u>		
Condensate	60,573	244,550
Natural Gas	1,148,157	4,397,876
<u>Fresh Water Bayou</u>		
Crude		57,882
Condensate	53,123	2,227,752
Casinghead Gas		316,714
Natural Gas	2,691,700	153,937,536
<u>Fresh Water Bayou, North</u>		
Crude		10,151
Condensate	477,677	6,208,605
Casinghead Gas		18,274
Natural Gas	26,040,052	314,919,269
<u>Hell Hole Bayou</u>		
Crude	16,847	331,485
Condensate	240,969	2,125,300
Casinghead Gas	17,541	774,260
Natural Gas	4,227,319	35,558,757
<u>Intercoastal City</u>		
Crude	41,055	400,513
Condensate	(520)	874,616
Casinghead Gas	286,063	1,896,850
Natural Gas		27,270,244
<u>Redfish Point</u>		
Crude	351,981	2,371,829
Condensate	206,728	3,998,019
Casinghead Gas	1,556,856	7,601,801
Natural Gas	7,764,439	126,480,671

continued

Basin and Field	1974 Production	Intermediate zone Cumulative total
<u>MERMENTAU</u>		
<u>Fire Island</u>		
Condensate	334	165,471
Natural Gas	47,616	10,370,451
<u>Florence, South</u>		
Crude	66,087	395,439
Condensate		378
Casinghead Gas	75,229	269,930
Natural Gas		21,222
<u>Lac Blanc</u>		
Crude		318,463
Condensate	401,287	5,821,643
Casinghead Gas		1,913,315
Natural Gas	17,292,146	318,680,082
<u>Outside Island</u>		
Crude		399,911
Condensate		33,463
Casinghead Gas		525,457
Natural Gas		855,182
<u>White Lake, East</u>		
Crude	2,000,248	41,763,057
Condensate	3,901	480,309
Casinghead Gas	1,438,590	28,490,834
Natural Gas	558,280	36,851,469
<u>White Lake, North</u>		
Condensate		111,314
Natural Gas		5,779,623
<u>White Lake, West</u>		
Crude	958,677	15,018,052
Condensate	176,661	5,503,288
Casinghead Gas	905,369	14,448,227
Natural Gas	7,119,275	267,512,315
<u>Big Lake</u>		
Crude	117,707	9,772,744
Condensate	26,442	1,890,477
Casinghead Gas	159,531	14,883,542
Natural Gas	1,383,903	75,707,765
<u>Chalkley</u>		
Crude	29,415	13,645,360
Condensate	66,201	2,342,749
Casinghead Gas	148,226	38,098,300
Natural Gas	7,665,055	267,168,361
<u>Cheniere Perdue</u>		
Crude	28,153	202,714
Condensate	22,511	988,988
Casinghead Gas	53,276	614,880
Natural Gas	1,114,815	27,667,583
<u>Deep Lake, North</u>		
Crude		26,272
Condensate	18,700	350,628
Casinghead Gas		255,308
Natural Gas	1,688,363	23,354,091

continued

Basin and Field	1974 Production	Intermediate zone Field Cumulative total
<u>Grand Lake</u>		
Crude	627,118	29,016,532
Condensate	24,698	701,498
Casinghead Gas	961,422	31,966,732
Natural Gas	1,516,964	53,138,989
<u>Lake Misere</u>		
Crude	—	86,545
Condensate	—	112,479
Casinghead Gas	—	66,863
Natural Gas	—	5,614,912
<u>Lake Misere, South</u>		
Crude	—	6,935
Condensate	59,606	843,639
Casinghead Gas	—	2,942
Natural Gas	26,371,953	229,913,343
<u>Little Cheniere</u>		
Crude	—	10,121
Condensate	63	29,134
Casinghead Gas	—	23,063
Natural Gas	49,197	489,374
<u>Little Cheniere Ridge</u>		
Crude	—	27,238
Casinghead Gas	—	6,664
<u>Mallard Bay</u>		
Crude	—	476,418
Condensate	8,201	1,148,077
Casinghead Gas	—	175,174
Natural Gas	1,070,916	44,415,812
<u>Pecan Lake</u>		
Condensate	46,820	3,075,151
Natural Gas	5,172,823	291,984,823
<u>Pecan Lake, South</u>		
Crude	30,043	928,337
Condensate	82,178	5,683,477
Casinghead Gas	55,908	3,399,754
Natural Gas	18,533,617	547,165,489
<u>Sweet Lake</u>		
Crude	905,239	31,497,997
Condensate	820	11,795
Casinghead Gas	529,612	10,960,567
Natural Gas	39,534	1,939,848
<u>Twin Island</u>		
Crude	5,193	390,078
Condensate	40,758	1,162,395
Casinghead Gas	63,130	3,948,932
Natural Gas	4,315,334	82,058,587
<u>High Island</u>		
Crude	—	505
Condensate	12,991	514,882
Casinghead Gas	—	25,665
Natural Gas	706,682	18,361,770

continued

## Appendix 6.2(1). Continued

Basin and Field	1974 Production	Intermediate zone	Field Cumulative total
CHENIER RIDGE			
<u>Pecan Island</u>			
Condensate	1,231,702		5,756,553
Natural Gas	126,368,853		610,863,479
<u>Pecan Island, North</u>			
Condensate	—		20,653
Natural Gas	—		1,833,397
<u>Big Mouth Bayou</u>			
Condensate	411		13,115
Natural Gas	191,249		2,101,804
<u>Cheniere Perdue, East</u>			
Crude	45,977		439,092
Condensate	—		66,953
Casinghead Gas	6,931		74,747
Natural Gas	—		9,688,526
<u>Cheniere Perdue, West</u>			
Condensate	(332)		24,159
Natural Gas	11,213		1,419,486
<u>Constance Bayou</u>			
Condensate	349		1,630,195
Natural Gas	96,252		45,464,523
<u>Crab Lake</u>			
Crude	27,977		188,759
Condensate	917		524,101
Casinghead Gas	—		115,156
Natural Gas	79,370		21,713,484
<u>Creole, South</u>			
Condensate	507		57,542
Natural Gas	58,269		4,977,674
<u>Deep Lake</u>			
Condensate	246,503		10,679,440
Natural Gas	18,136,290		821,585,894
<u>Grand Cheniere</u>			
Crude	25,414		670,627
Condensate	161,558		2,630,244
Casinghead Gas	26,704		3,392,294
Natural Gas	8,100,222		127,788,423
<u>Grand Cheniere, South</u>			
Condensate	27,586		795,605
Natural Gas	4,808,780		90,708,317
<u>Hog Bayou</u>			
Crude	51,556		1,255,684
Condensate	—		453,211
Casinghead Gas	—		2,474,303
Natural Gas	—		37,265,947
<u>Kings Bayou</u>			
Condensate	157,085		1,734,074
Natural Gas	9,879,352		145,488,824

continued

Basin and Field	1974 Production	Intermediate zone Field Cumulative total
<u>Little Pecan Lake</u>		
Crude	20,288	465,621
Condensate	135,404	2,176,518
Casinghead Gas	25,783	8,944,118
Natural Gas	8,431,089	124,621,445
<u>Mud Lake, Lower</u>		
Condensate	—	272,574
Natural Gas	—	13,586,659
<u>Price Lake</u>		
Crude	—	2,845
Condensate	21,509	644,650
Casinghead Gas	—	13,835
Natural Gas	734,070	18,254,076
<u>Second Lake</u>		
Condensate	—	2,385
Natural Gas	—	1,177,542
 CALCASIEU		
<u>Calcasieu Lake</u>		
Crude	20,106	263,285
Condensate	—	13,740
Casinghead Gas	242,516	1,447,278
Natural Gas	—	3,911,297
<u>Calcasieu Pass</u>		
Crude	—	228,158
Condensate	35,427	599,212
Casinghead Gas	—	211,361
Natural Gas	2,770,932	39,612,513
<u>Cameron</u>		
Crude	202,861	1,882,474
Condensate	240,560	4,985,010
Casinghead Gas	447,598	2,222,166
Natural Gas	6,440,391	260,603,652
<u>Choupique</u>		
Crude	52,946	798,929
Condensate	—	175,475
Casinghead Gas	161,782	1,887,570
Natural Gas	—	10,895,137
<u>Grosse Savanne</u>		
Crude	—	122,656
Casinghead Gas	—	38,500
<u>Hackberry, East</u>		
Crude	1,736,848	93,484,158
Condensate	354	112,932
Casinghead Gas	932,771	59,840,423
Natural Gas	59,137	6,431,009
<u>Hackberry, West</u>		
Crude	2,884,531	117,688,660
Condensate	19,176	105,888
Casinghead Gas	2,604,637	97,790,353
Natural Gas	1,128,243	8,228,030

continued

Basin and Field	1974 Production	Intermediate zone Cumulative total
<u>Holly Beach</u>		
Condensate	2,791	700,762
C.T.C.	—	92,218
Natural Gas	538,966	59,650,069
<u>Holly Beach, East</u>		
Condensate	13,719	36,365
C.T.C.	—	307,005
Natural Gas	3,453,126	38,238,941
<u>Lake Charles, South</u>		
Crude	50,033	1,588,844
Condensate	105,388	1,532,062
Casinghead Gas	187,977	3,641,620
Natural Gas	1,733,280	43,219,060
<u>Moss Lake, East</u>		
Crude	18,749	3,774,755
Condensate	49,671	2,523,006
Casinghead Gas	19,140	4,850,982
Natural Gas	1,890,203	70,294,821
<u>Mud Lake</u>		
Crude	—	249,240
Condensate	(77)	124,000
C.T.C.	—	15,816
Casinghead Gas	—	651,588
Natural Gas	—	8,809,738
<u>Mud Lake, East</u>		
Crude	—	80,235
Condensate	26,134	2,972,803
C.T.C.	77,209	1,836,852
Casinghead Gas	—	18,802
Natural Gas	16,731,420	536,024,049
SABINE		
<u>Black Bayou</u>		
Crude	1,367,183	44,593,734
Condensate	—	115,905
Casinghead Gas	584,364	24,222,622
Natural Gas	—	1,786,961
<u>Black Bayou, South</u>		
Crude	462,062	3,682,397
Condensate	70,511	517,835
Casinghead Gas	1,714,818	12,590,562
Natural Gas	704,406	6,144,235
<u>Black Bayou, Southeast</u>		
Condensate	484	484
Natural Gas	15,852	15,852
<u>Blue Buck Point</u>		
Condensate	—	718
Natural Gas	—	61,823

continued

Basin and Field	1974 Production	<u>Intermediate zone</u> Cumulative total
<u>Cameron Meadows</u>		
Crude	308,650	15,163,111
Condensate	—	2,317,831
C.T.C.	33,157	2,086,376
Casinghead Gas	175,527	4,529,298
Natural Gas	3,105,341	139,697,893
<u>Cameron Meadows, East</u>		
C.T.C.	—	24,609
Natural Gas	—	652,483
<u>Deep Bayou</u>		
Crude	—	6,070
Condensate	27,246	66,284
C.T.C.	—	319,864
Casinghead Gas	—	6,492
Natural Gas	3,264,493	28,258,378
<u>Gum Cove</u>		
Crude	—	176,662
Condensate	—	494,174
C.T.C.	—	140,975
Casinghead Gas	—	1,708,891
Natural Gas	—	13,412,594
<u>Johnsons Bayou</u>		
Crude	756,543	14,924,288
Condensate	243,540	3,784,050
Casinghead Gas	640,878	11,609,947
Natural Gas	2,868,873	103,656,259
<u>Johnsons Bayou, West</u>		
Condensate	48,357	50,522
Natural Gas	3,447,979	3,572,503
<u>Louisiana Point</u>		
Condensate	—	7,864
Natural Gas	—	1,275,010
<u>Ocean View Beach</u>		
Natural Gas	—	51,231
<u>Phoenix Lake</u>		
Crude	295,138	21,818,254
Condensate	27,456	1,012,105
Casinghead Gas	355,285	26,691,900
Natural Gas	57,142	9,774,012
<u>Sabine Lake, North</u>		
Condensate	28,784	260,780
C.T.C.	—	402,387
Natural Gas	1,063,240	19,505,660
<u>Second Bayou</u>		
Condensate	8,688	361,611
C.T.C.	37,090	1,491,565
Natural Gas	9,880,217	232,197,007
<u>Smith Ridge</u>		
Crude	—	194,931
Casinghead Gas	—	64,127

continued

Appendix 6.2(1). Continued

Basin and Field	1974 Production	<u>Offshore zone</u> Field Cumulative total
VERMILION		
<u>Lighthouse Point</u>		
Crude	129,053	998,294
Condensate	101,099	1,147,919
Casinghead Gas	1,189,857	4,866,080
Natural Gas	12,084,294	102,918,046
<u>Vermilion Block 14</u>		
Crude	—	77
Condensate	144,267	2,395,449
Natural Gas	30,369,938	299,610,836
<u>Vermilion Block 16</u>		
Crude	—	40,732
Condensate	661,857	11,820,955
Casinghead Gas	—	355,677
Natural Gas	13,286,417	210,152,604
CHENIER BASIN		
<u>Hog Bayou</u>		
Crude	82,147	812,676
Condensate	245,397	3,060,080
Casinghead Gas	38,024	67,820
Natural Gas	16,583,914	179,248,541
<u>East Cameron Block 4</u>		
Condensate	—	1,486,343
Natural Gas	—	72,522,627
<u>East Cameron Block 17</u>		
Crude	2,878	1,938,078
Condensate	—	960,831
Casinghead Gas	3,269	4,885,408
Natural Gas	—	61,850,052
<u>West Cameron Block 33</u>		
Condensate	—	3,113
Natural Gas	—	3,398,693
CALCASIEU		
<u>Creole</u>		
Crude	176,813	6,537,068
Condensate	249	43,146
Casinghead Gas	135,431	6,014,127
Natural Gas	205,528	3,853,125
<u>West Cameron Block 28</u>		
Condensate	2,861	16,605
Natural Gas	911,271	4,724,237

continued

Appendix 6.2(1). Concluded

Basin and Field	1974 Production	<u>Offshore zone</u>	Field Cumulative total
<b>SABINE</b>			
<u>West Cameron Block 17</u>			
Condensate	14,639		851,384
Natural Gas	3,452,081		151,908,061
<u>West Cameron Block 19</u>			
Condensate	58,045		568,743
Natural Gas	5,934,259		54,321,123
<u>West Cameron Block 45</u>			
Condensate	15,751		155,371
Natural Gas	247,929		4,264,329

Appendix 6.2(2). Texas oil and gas production from individual oil and gas fields, by basin, in 1974 (Railroad Commission of Texas 1974).

Basin and Field	1974	Intermediate zone
	Production <sup>1</sup>	Field Cumulative total
SABINE		
<u>Spindletop</u>		
Casinghead	42,987	
Crude	163,908	151,656,650
<u>Willow Slough</u>		
Crude	32,698	2,085,744
Condensate	1,150	
Casinghead	78,466	
Natural Gas	1,773,709	
<u>LaBelle</u>		
Casinghead	189,384	
Crude	391,211	10,499,963
Natural Gas	424,442	
Condensate	1,049	
<u>Rose City</u>		
Casinghead	192,206	
C.O.	283,762	12,423,271
<u>Clam Lake</u>		
Casinghead	112,267	
C.O.	468,093	16,258,506
<u>Big Hill</u>		
Casinghead	718,960	
C.O.	390,895	13,575,051
Natural Gas	2,293,104	
Condensate	32,846	
<u>McFadden Ranch</u>		
Casinghead	190,252	
C.O.	154,413	591,450
EAST BAY		
<u>Oyster Bayou</u>		
Casinghead	4,823,340	
C.O.	5,527,857	95,476,594
Natural Gas	24,005	
Condensate	536	

continued

<sup>1</sup>Crude oil and condensate in barrels natural gas, condensate and C.T.C. in mcf.

Appendix 6.2(2). Concluded

Field	Production 1974	Cumulative total
<u>High Island</u>		
Casinghead	1,545,669	
C.O.	1,191,447	
Natural Gas	80,588,995	130,157,881
Condensate	237,611	
<u>Mayes</u>		
Casinghead	65,104	
C.O.	20,022	2,576,683
Natural Gas	3,190,204	
Condensate	58,488	
<u>Jackson Pasture</u>		
Casinghead	76,967	
C.O.	77,921	429,381
Natural Gas	84,897	
Condensate	2,220	
<u>Smith Point</u>		
Casinghead	70,969	
C.O.	11,492	97,452
Natural Gas	867,527	
Condensate	24,835	
<u>Point Bolivar</u>		
Casinghead	3,929,382	
C.O.	406,593	14,151,462
Natural Gas	27,367,215	
Condensate	239,432	
<u>Caplan</u>		
Casinghead	619,417	
C.O.	564,921	4,566,718
Natural Gas	92,400	

Appendix 6.2(3). Total Chenier Plain mineral fuel production, by basin, in 1974  
(Louisiana Department of Conservation 1977, Railroad Commission of Texas 1974).

Basin	Crude (barrels)	Condensate and C.T.C. (barrels)	Casinghead gas (mcf)	Natural gas (mcf)
VERMILION				
Inshore	--	35,454	--	7,592,547
Intermediate	502,721	1,259,479	3,434,103	51,986,767
Offshore	<u>129,053</u>	<u>907,223</u>	<u>1,189,857</u>	<u>55,740,649</u>
TOTAL	631,774	2,202,156	4,623,960	108,319,963
	2,833,930		112,943,923	
MERMENTAU				
Inshore	741,238	2,017,341	886,134	89,997,593
Intermediate	4,767,889	1,016,870	4,390,293	94,666,473
Offshore	--	--	--	--
TOTAL	<u>5,509,118</u>	<u>3,034,211</u>	<u>5,276,427</u>	<u>184,664,066</u>
	8,543,329		189,940,493	
CHENIER				
Inshore	--	--	--	--
Intermediate	170,938	1,983,863	59,418	176,895,009
Offshore	<u>85,025</u>	<u>245,397</u>	<u>41,293</u>	<u>16,483,914</u>
TOTAL	255,963	2,229,270	100,711	193,478,923
	2,485,233		193,579,634	
CALCASIEU				
Inshore	272,833	14,485	257,002	606,836
Intermediate	4,966,074	570,506	4,596,421	36,478,978
Offshore	<u>176,813</u>	<u>3,110</u>	<u>135,431</u>	<u>1,116,799</u>
TOTAL	5,415,720	588,101	4,988,854	38,202,613
	6,003,821		43,191,467	
SABINE (La.)				
Inshore	--	--	--	--
Intermediate	3,189,576	525,314	3,460,872	24,407,513
Offshore	--	<u>117,619</u>	--	<u>11,401,438</u>
TOTAL	<u>3,189,576</u>	643,033	3,460,872	35,808,981
	3,832,609		39,269,853	
SABINE (Tex.) TOTAL	1,864,980	35,045	1,524,522	4,491,255
	1,900,025		6,015,777	
CHENIER BASIN TOTAL	5,054,556	678,078	4,985,394	40,300,236
	5,732,634		45,285,630	
CHENIER BASIN, TEX. TOTAL	7,800,253	363,122	11,130,850	112,215,243
	8,163,375		123,346,093	

Appendix 6.2(4). Brine water disposal from individual Louisiana fields, by basin, in 1974 (Louisiana Department of Conservation 1977).

Basin Field	To Disposal Wells	To Pits	- To Nonpotable Water Bodies
VERMILION			
Bancker	210.0	--	--
Buck Point	--	--	737.2
Buck Point, East	--	--	72.3
Buck Point, North	--	--	1.1
Esther	27.4	--	--
Esther, Southwest	120.0	--	--
Freshwater Bayou	--	--	457.5
Hill Hole Bayou	--	--	20.5
Live Oak	939.4	--	2,307.3
Redfish Point	--	--	5.9
Theall	351.9	--	--
Total	1,648.7	--	3,601.8
MERMENTAU			
Big Lake	210.9	--	288.1
Chalkley	364.2	21.2	--
Fire Island	222.7	--	--
Florence	42.5	--	--
Florence, South	660.9	--	--
Freshwater Bayou, North	--	--	1,100.8
Grand Cheniere	1,936.2	--	--
Grand Lake	2,136.1	--	--
Gueydan, West	246.4	--	--
Lacassine Refuge	581.2	--	--
Lake Arthur, SW	41.34	10.12	--
Lac Blanc	0.3	--	--
Lake Misere	--	2.8	--
Lakeside	181.3	--	--
Little Pecan Lake	1,399.8	--	--
Mallard Bay	364.0	--	--
Pecan Lake	2,563.3	--	--
Sweet Lake	12,323.8	--	--
White Lake, East	6,281.6	--	--
White Lake, West	2,858.7	--	--
Total	32,415.24	34.12	1,388.9
CHENIER RIDGE			
Cheniere Perdue	981.0	16.1	--
Cheniere Perdue, East	32.1	12.5	--
Deep Lake	1,223.0	--	206.8
Grand Cheniere, South	--	--	179.6
Kings Bayou	421.7	13.5	--
Pecan Island	--	--	3,698.9
Price Lake	--	--	376.4
Total	2,657.8	42.1	4,461.7

continued

Basin	Field	To Disposal Wells	To Pits	To Nonpotable Water Bodies
CALCASIEU				
	Bayou Choupique	154.7	--	--
	Calcasieu Pass	--	--	176.2
	Cameron	3,138.2	--	--
	Hackberry, East	--	--	2,286.0
	Hackberry, West	--	50.0	1,551.7
	High Island	15.7	--	--
	Holly Beach, East	--	--	120.7
	Mud Lake, East	--	0.006	--
Total		3,308.6	50.006	4,134.6
SABINE				
	Black Bayou	--	--	6,438.5
	Deep Bayou	--	--	1.3
	Johnson's Bayou	12.8	--	--
	Johnson's Bayou, West	--	--	6.5
	Sabine Lake, North	660.6	--	--
	Second Bayou	1.8	10.3	--
Total		675.2	10.3	6,446.3

Appendix 6.2(5). Producing oil and gas wells for 1974 in Chenier Plain basins, and the total number of wells (Louisiana Department of Conservation 1977).

Location of Wells	1974 Producing wells		Total wells to end of 1974	
	Oil	Gas	Oil	Gas
<b>VERMILION</b>				
Bancker	5	0	8	6
Buck Point	0	10	1	16
Buck Point, East	0	2	6	4
Esther	-	2	-	6
Fresh Water Bayou	-	3	-	18
Hill Hole Bayou	1	4	1	2
Intracoastal City	2	0	2	4
Live Oak	0	19	10	13
Buck Point, North	0	2	-	1
Fresh Water Bayou, North	0	17	1	23
Nunez	-	0	-	1
Redfish Point	3	9	2	16
Esther, Southwest	0	2	1	9
Theall	-	4	-	11
<b>MERMENTAU</b>				
Florence, East	0	-	1	-
White Lake, East	15	2	65	7
Fire Island	-	0	-	3
Florence	-	2	1	17
Gueydan	4	1	80	20
Lac Blanc	0	17	4	34
Mulvey	1	0	4	3
White Lake, North	-	0	-	2
Outside Island	0	0	1	3
Riceville	1	5	1	11
Florence, South	2	0	1	2
Lake Arthur, South	-	0	-	1
Gueydan, Southeast	-	8	-	14
Perry, South	-	0	-	1
Riceville, South	0	0	-	1
Gueydan, Southwest	0	2	-	4
Gueydan, West	6	11	37	37
White Lake, West	11	10	27	27
Lake Arthur, East	-	0	-	6
Thornwell, South	0	27	2	51
Lake Arthur, West	2	2	6	5
Chalkley	2	17	38	33
Chalkley, North	0	5	1	8
Big Lake	1	9	50	27
Cheniere Perdue	2	4	1	8
Grand Lake	18	7	65	21
Lacassine Refuge	-	3	-	7
Lake Misere	0	0	1	2

continued

## Appendix 6.2(5). Continued

Location of Wells	1974 Producing wells		Total wells to end of 1974	
	Oil	Gas	Oil	Gas
MERMENTAU - Cont'd.				
Lakeside	0	6	1	21
Little Chenier Ridge	0	-	1	1
Mallard Bay	0	6	2	9
Deep Lake, North	0	2	1	7
Sweet Lake, North	0	0	1	1
Pecan Lake	-	13	-	27
Lake Misere, South	0	12	1	17
Pecan Lake, South	1	12	8	44
Thornwell, South	0	27	2	49
Lake Arthur, Southwest	1	10	1	21
Sweet Lake	1	0	86	3
Twin Island	1	7	5	15
Chalkley, West	0	0	1	-
CHENIER BASIN				
Pecan Island, North	-	0	-	1
Pecan Island	-	40	-	44
Big Mouth Bayou	-	1	-	2
Constance Bayou	-	1	-	12
Crab Lake	0	2	2	10
Deep Lake	-	21	-	79
Cheniere Perdue, East	2	0	2	5
Go Around Bayou	-	0	-	4
Grand Cheniere	1	13	3	21
Hog Bayou	3	7	3	15
Kings Bayou	0	10	-	20
Little Cheniere	0	0	1	4
Little Pecan Lake	2	5	8	35
Lower Mud Lake	-	0	-	8
Price Lake	0	3	1	7
Second Lake	-	0	-	2
Creole, South	-	1	-	4
Grand Cheniere, South	-	8	-	20
Cheniere Perdue, West	-	0	-	2
CALCASIEU				
Bayou Choupique	0	0	3	10
Choupique	1	-	5	4
Moss Lake, East	1	4	24	18
Lake Charles	-	1	-	5
Lockport	5	2	165	14

continued

Appendix 6.2(5). Concluded

# Wells	1974 Producing wells		Total wells to end of 1974	
	Oil	Gas	Oil	Gas
CALCASIEU - cont'd.				
Lake Charles, South	4	6	17	18
Calcasieu Lake	0	5	5	2
Calcasieu Pass	0	0	3	13
Cameron	4	22	10	26
Hackberry, East	4	2	397	20
Holly Beach, East	-	3	-	9
Mud Lake, East	0	18	1	26
Grosse Savanne	0	-	1	-
Holly Beach	-	3	-	10
Mud Lake	0	0	1	2
Hackberry, West	23	5	433	19
SABINE				
Phoenix Lake	0	2	52	5
Black Bayou	12	0	168	7
Blue Buck Point	-	0	-	4
Cameron Meadows	9	3	97	9
Deep Bayou	0	2	1	3
East Cameron Meadows	-	0	3	1
Gum Cove	0	0	3	2
Johnson Bayou	23	2	47	24
Louisiana Point	-	0	-	1
Sabine Lake, North	-	1	-	4
Ocean View Beach	-	0	-	1
Second Bayou	-	14	-	27
Smith Ridge	0	0	2	1
Black Bayou, South	9	2	15	1
Johnson's Bayou, West	-	3	-	3

Appendix 6.2(6). Value of agricultural products in Chenier Plain counties/parishes in 1974 (U.S. Department of Agriculture 1975a).

Parish (County)	Area (ha)	Total number of farms	Average number ha/farm	Value		
				All agricultural products	per ha	All crops Livestock and poultry products
Orange	25,105	190	132.1	2,489	99.1	1,594 511
Galveston	41,917	295	142.1	4,147	98.8	2,926 1,076
Jefferson	130,977	426	307.4	34,788	265.6	30,493 3,599
Chambers	125,108	284	440.3	21,557	172.2	19,930 1,521
Calcasieu	165,151	665	248.4	32,956	199.7	30,204 2,410
Cameron	99,281	329	301.8	22,037	73.1	5,965 1,096
Jefferson Davis	132,826	652	203.7	58,890	443.3	57,353 1,348
Vermilion	151,567	1,475	102.7	56,100	340.2	52,779 2,868

Appendix 6.2(7). Total value of farm products from Chenier Plain counties/parishes in 1974 (U.S. Department of Agriculture 1975a).

Counties/ parishes	Total farm acres	Market values of all agriculture products (\$ x 1000)	Value acre (\$)	Other farm related income (\$ x 1000)	Farm production expenses (\$ x 1000)	Net return (\$ x 1000)	Net return per acre (\$)
Orange	62,035	2,489	40	8	1,973	524	8.45
Galveston	103,576	4,147	40	115	3,388	874	8.43
Jefferson	323,643	34,788	107	563	20,554	14,797	45.72
Chambers	309,141	21,557	70	345	13,477	8,425	27.25
Calcasieu	408,088	32,956	80	168	20,455	12,669	31.04
Cameron	245,323	7,250	30	321	4,589	2,982	12.15
Jefferson Davis	328,212	58,890	180	474	29,947	29,417	89.63
Vermilion	374,523	56,100	150	473	29,632	27,941	74.60

Appendix 6.2(8). Value of crops from Chenier Plain counties/parishes  
in 1974 (U.S. Department of Agriculture 1975a).

	Total cropland acres	Harvested cropland acres	Value of all crops \$ x 1000	Total crop value per acre of total cropland (\$ x 1000)	Total crop value per acre of harvested cropland (\$ x 1000)	Harvested cropland/ total cropland
Orange	26,101	8,224	1,594	61.0	193.8	.32
Galveston	36,690	15,574	2,926	79.7	187.9	.42
Jefferson	148,664	89,628	30,493	205.1	340.2	.34
Chambers	109,763	59,566	19,930	181.6	334.6	.60
Calcasieu	207,470	126,428	30,204	145.6	238.9	.61
Cameron	65,693	23,217	5,965	90.8	256.9	.35
Jefferson Davis	284,829	215,277	57,353	201.4	266.4	.76
Vermilion	292,633	172,154	52,779	180.4	306.6	.59

Appendix 6.2(9). Method of conversion of  
county-based agriculture data to Chenier  
Plain basins.

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For each parish within a basin a value per ha was calculated from 1974 data of the U.S. Department of Agriculture (1975). This was multiplied by the ratio of the rural population of the parish in the basin to the total rural population in the parish. This value was summed for all parishes impinging on a basin.

$$\text{Value/ha/basin} = \sum \left[ \text{Value/ha/parish} \frac{\text{Rural population of parish in basin}}{\text{Total rural population of parish}} \right]$$

where n = parishes in a basin

BASIN	Rural Population	PARISH Factor <sup>1</sup>
Vermilion		Vermilion 1.0 x $\chi_v$
	496	0.40 x $\chi_{\text{Vermilion}}$
	<u>724</u>	0.60 x $\chi_{\text{Cameron}}$
Chenier	1,220	
	4,452	0.56 x $\chi_{\text{Vermilion}}$
	<u>3,522</u>	0.44 x $\chi_{\text{Cameron}}$
Mermentau	7,974	
	2,422	0.25 x $\chi_{\text{Cameron}}$
	<u>7,368</u>	0.75 x $\chi_{\text{Calcasieu}}$
Calcasieu	9,790	
	1,372	0.58 x $\chi_{\text{Cameron}}$
	<u>1,008</u>	0.42 x $\chi_{\text{Calcasieu}}$
Sabine, La.	2,480	

continued

Appendix 6.2(9). Concluded

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	16,641	$0.83 \times \chi_{\text{Orange}}$
	<u>3,362</u>	$0.17 \times \chi_{\text{Jefferson}}$
Sabine, Tex.	20,003	
		$.06 \times \chi_{\text{Cameron}}$
		$.15 \times \chi_{\text{Calcasieu}}$
		$.74 \times \chi_{\text{Orange}}$
Sabine Total	22,383	$.15 \times \chi_{\text{Jefferson}}$
	2,400	$0.50 \times \chi_{\text{Chambers}}$
	<u>2,424</u>	$0.50 \times \chi_{\text{Galveston}}$
East Bay	4,824	

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<sup>1</sup> Parish factor is the ratio of rural parish population in a basin to total rural population.

Appendix 6.2(10). Agricultural fertilizer use in Chenier Plain counties/  
parishes in 1974 (U.S. Department of Agriculture 1975a).

County/parish	Total acres	Number of acres fertilized	Percent of total acres fertilized	Tons	Tons/ acre
Orange	62,035	7,396	0.12	1,091	0.1475
Galveston	103,576	7,394	0.07	1,427	0.1930
Jefferson	323,643	94,929	0.29	18,545	0.1922
Chambers	309,141	61,291	0.20	12,027	0.1962
Calcasieu	408,088	123,761	0.30	19,907	0.1609
Cameron	245,323	23,797	0.10	3,751	0.1576
Jefferson Davis	328,212	204,498	0.62	34,475	0.1683
Vermilion	374,523	170,214	0.45	28,219	0.1658

Appendix 6.2(11). Estimated Texas (T) and Texas Chenier Plain (C)  
fur harvest for selected species 1972-1977<sup>1</sup>

Fur	1972-1973		1973-1974		1974-1975		1975-1976		1976-1977	
	T <sup>2</sup>	C <sup>5</sup>	T <sup>2</sup>	C <sup>5</sup>	T <sup>2</sup>	C <sup>5</sup>	T <sup>2,3</sup>	C <sup>5</sup>	T <sup>4</sup>	C <sup>5</sup>
Raccoon	150,362	4,511	304,273	9,128	372,377	11,171	353,444	10,603	430,510	12,915
Nutria	2,240	1,120	41,974	20,987	12,197	6,099	6,715	3,358	45,481	22,741
Muskrat	10,108	8,086	8,646	6,917	16,622	13,299	9,113	7,290	13,157	10,526

<sup>1</sup>Texas Parks and Wildlife Department, unpublished data compiled by Bill Brownlee, 1977.

<sup>2</sup>Estimated Texas harvest based on fur dealer reports.

<sup>3</sup>Number of dealers reporting was too small to accurately estimate for harvest

<sup>4</sup>Estimated Texas harvest based on trapper survey.

<sup>5</sup>Estimate of percent of total for Texas Chenier Plain region of Texas by Bill Brownlee, Texas Parks and Wildlife Department, 1977.

	Salt marsh		Brackish marsh		Intermediate marsh		Fresh and impounded marsh		Total
	Area	Yield <sup>1</sup>	Area	Yield <sup>2</sup>	Area	Yield <sup>3</sup>	Area	Yield <sup>4</sup>	
Vermilion	1,526	456	13,603	13,204	14,797	5,110	14,067	729	19,499
Chenier	5,836	1,728	14,222	13,794	8,184	2,820	48,834	2,532	20,874
Mermentau	0	0	0	0	5,519	1,904	122,932	6,376	8,280
Calcasieu	2,145	636	26,330	25,545	20,412	7,056	15,667	813	34,050
Sabine	4,610	1,368	38,443	37,335	29,788	10,304	69,752	3,618	52,625
East Bay	3,038	900	8,257	8,017	6,143	2,128	6,869	357	11,402
Total									146,730

<sup>1</sup>At 120 pelts per 1000 ha (Palmisano 1972a).

<sup>2</sup>At 393 pelts per 1000 ha (Palmisano 1972a).

<sup>3</sup>At 140 pelts per 1000 ha (Palmisano 1972a).

<sup>4</sup>At 21 pelts per 1000 ha (Palmisano 1972a).

Appendix 6.2(13). Estimated harvest of Chenier Plain nutria by basin and marsh type.

	Salt marsh		Brackish marsh		Intermediate marsh		Fresh and impounded marsh		Total
	Area	Yield <sup>1</sup>	Area	Yield <sup>2</sup>	Area	Yield <sup>3</sup>	Area	Yield <sup>4</sup>	
Vermillion	1,526	0	13,603	3,024	14,797	10,950	14,067	17,350	31,324
Chenier	5,836	0	14,222	3,159	8,184	6,060	48,834	60,300	69,519
Mermentau	0	0	0	0	5,519	4,080	122,932	151,800	155,880
Calcasieu	2,145	0	26,330	5,850	20,412	15,120	15,667	19,350	40,320
Sabine	4,610	0	38,443	8,550	29,788	22,080	69,752	86,150	116,780
East Bay	3,038	0	8,257	1,836	6,143	4,560	6,869	8,500	14,896
Total									428,719

<sup>1</sup>At 0 pelts per 1000 ha (Palmisano 1972b).

<sup>2</sup>At 90 pelts per 1000 ha (Palmisano 1972b).

<sup>3</sup>At 300 pelts per 1000 ha (Palmisano 1972b).

<sup>4</sup>At 500 pelts per 1000 ha (Palmisano 1972b).

Appendix 6.2(14). Calculation of commercial fisheries yield per estuarine hectare for East Bay and Sabine basins (U.S. Department of Commerce 1976b).

	Shrimp <sup>1</sup>		Croaker		Blue crabs		Oyster		Sea trout		Red drum	
	lbs	Galveston lbs	Sabine lbs	Galveston lbs	Sabine lbs	Galveston lbs meat	Galveston lbs	Sabine lbs	Galveston lbs	Sabine lbs	Galveston lbs	Sabine lbs
1970	8,652,945	37,000	---	2,622,000	685,000	3,850,200	89,200	---	---	---	35,300	---
1971	12,928,943	7,400	---	2,160,800	1,918,000	4,021,700	75,900	---	---	---	18,100	---
1972	9,291,656	8,900	---	1,870,100	1,288,700	3,259,700	128,400	---	---	---	33,600	---
1973	7,755,219	---	---	2,040,000	1,358,200	1,590,688	232,800	4,000	---	---	49,600	700
1974	13,850,693	28,900	---	1,983,000	560,800	1,422,600	272,900	---	---	---	34,900	---
1975	9,252,526	23,200	700	1,863,500	620,900	1,236,800	221,000	700	---	---	79,500	500
Mean	10,288,664	21,080	t <sup>2</sup>	2,089,900	1,071,933	2,563,615	170,033	t	t	t	36,793	t
Size of inland estuary (A)	423,402	353,218	70,070	354,218	70,070	354,218	354,218	70,070	70,070	70,070	354,218	70,070
Yield per acre per year (lbs/A)	24.3	0.060	t	5.9	15.3	7.24	0.48	t	t	t	0.10	t
(kg per ha)	27.	0.07	t	6.6	17.1	8.1	0.54	t	t	t	0.12	t

<sup>1</sup>Grid zone 18 offshore and inland.

<sup>2</sup>t = trace.

Appendix 6.2(15). Western Louisiana commercial fisheries landings,  
1970 to 1975 (U.S. Department of Commerce 1976b).

Species	1970		1971		1972		1973		1974		1975	
	Weight Kg x 1000	Value \$ x 1000	Weight Kg x 1000	Value \$ x 1000	Weight Kg x 1000	Value \$ x 1000	Weight Kg x 1000	Value \$ x 100	Weight Kg x 1000	Value \$ x 1000	Weight Kg x 1000	Value \$ x 1000
Menhaden	231,369	10,071	287,523	10,241	230,956	8,376	213,453	19,403	251,717	20,512	233,872	15,423
Shrimp	8,341	8,396	7,391	9,841	9,496	11,558	8,013	14,398	7,097	9,761	7,024	11,777
Blue Crab	1,796	308	334	82	1,940	460	1,888	505.7	1,424	433	2,257	763.3
Flounder	21.4	9.1	13.9	5.6	59.7	30.2	25.6	13.4	18.1	10.3	23.0	18.2
Oyster (meat)	1,754	1,717	--	--	1,494	2,133	984	1,613	379.6	753.2	561.0	957.3
Sea Trout	40.4	19.0	--	--	68.8	38.3	238.5	193.1	173.3	123.9	216.3	181.3
Redfish	6.6	2.3	5.6	2.6	19.8	10.5	28.6	20.6	19.4	12.4	49.3	38.1
Subtotal	243,527.4	20,583.4	295,268	20,173	244,034.3	24,606	224,630.7	36,146.8	260,828.4	31,605.8	244,002.6	31,160.2
Catfish and Bullhead	150	94.9	109	62.0	120.7	69.6	114.1	69.0	114.1	75.4	124.6	93.9
Crawfish	91	59.6	--	--	9.9	7.9	--	--	--	--	--	--
<b>Buffalo</b>	43	12.9	16.8	4.5	--	--	--	--	--	--	--	--
Subtotal	284	167.4	27.7	66.5	130.6	77.5	114.1	69.0	114.1	75.4	124.6	93.9
Miscellaneous other	164.6	29.2	259.2	14.6	192.6	--	220.7	50.9	144.0	31.0	384.0	65.0
Total	243,977	20,780	295,633	20,255	244,357	16,231	224,965	36,266	261,086.5	31,712.2	244,511.2	31,319.1

Appendix 6.2(16). Texas commercial fisheries landings, 1970 to 1975  
(U.S. Department of Commerce 1976b).

	1970			1971		
	lbs	Sabine \$	Galveston \$	lbs	Sabine \$	Galveston \$
Total finfish	500	100	4,4019	212,200		33,778
Cobia						
Croaker			1,882	7,400		520
Drum: Black			3,779	25,200		2,706
Red			7,398	18,100		4,322
Flounder	500	100	5,877	18,500		4,702
Grouper						
King whiting			523	8,600		608
Sea cutfish			687	4,100		226
Sea trout, spotted			19,002	75,900		17,760
Sheepshead			2,087	1,900		207
Red snapper				6,100		577
Other				30,000		1,607
Total shellfish	709,800	73,016	3,919,976	1,960,500	214,817	4,323,192
Crabs, blue	685,000	63,998	244,798	1,918,000	188,008	213,240
Oyster meat	---	---	1,700,547	---	---	2,054,624
Shrimp: Brown and pink (heads on) White	2,900 21,900	865 8,153	291,480 1,662,877	5,100 37,400	569 26,240	407,246 1,645,695

continued

Appendix 6.2(16). Continued

	1972			1973		
	lbs	Sabine \$	Galveston lbs	lbs	Sabine \$	Galveston \$
Total finfish			493,700	71,524	6,100	2,010
Cobia						690,400
Croaker			8,900	817		40,000
Drum: Black			72,700	7,970	1,400	9,300
Red			33,600	8,433	700	49,600
Flounder			21,100	6,186		9,900
Grouper (Gullet)						3,733
King whiting			15,700	1,469		69,100
Sea catfish			3,200	216		19,200
Sea trout, spotted			128,400	32,764	4,000	20,500
Sheepshead			18,700	2,677		232,800
Red snapper						75,094
Other						5,800
Total shellfish	1,298,000	132,067	9,487,400	4,869,941	1,358,200	97,700
Crabs, blue	1,388,700	127,369	1,870,100	191,649	1,358,200	9,186,200
Oyster meat			3,259,700	2,114,613		2,040,000
Shrimp: Brown and pink			1,398,500	430,982		2,129,400
(heads on) White	7,300	4,698	2,956,700	2,132,363		951,600
Squid						4,063,400
						1,800
						280

continued

Appendix 6.2(16). Concluded

	1974			1975		
	lbs	Sabine \$	Galveston \$	lbs	Sabine \$	Galveston \$
Total finfish						
Cobia				613,700	971	156,968
Croaker						
	28,900		2,840	700	65	2,596
Drum: Black	27,600		3,720	600	114	8,773
Red	34,900		10,792	500	180	30,070
Flounder	20,100		6,710	500	193	8,489
Grouper						
King whiting	6,100		566	500	57	2,680
Sea catfish	33,200		1,828			
				29,600		2,995
Sea trout, spotted	272,900		87,689	700	243	85,170
Sheepshead	1,000		146	800	117	4,694
Red snapper						
Other						
Total shellfish	560,800	77,090	2,838,696	621,300	97,444	4,549,489
Crabs, blue	560,800	77,090	273,301	620,900	96,740	287,019
Oyster meat			753,292			
				1,236,800		957,346
Shrimp: Brown and pink (heads on) White			378,773	828,400		344,578
			1,432,538	3,927,200	704	2,960,073

Appendix 6.2(17). Total monthly distribution of industrial water use (millions of gallons) in 1967 for southwestern Louisiana (Louisiana Department of Public Works 1970).

Month	Southwestern Louisiana		
	Intake	Consumption	Return flow
January	14,288	1,012	13,276
February	13,410	976	12,434
March	14,820	1,039	13,781
April	15,300	1,051	14,249
May	15,309	1,069	14,240
June	16,324	1,103	15,221
July	16,803	1,130	15,673
August	17,483	1,159	16,324
September	16,924	1,148	15,776
October	16,552	1,142	15,410
November	16,462	1,123	15,339
December	16,819	1,121	15,698
Total	190,494	13,073	177,421

Total Traffic

<u>Year</u>	<u>Total</u>
1967	1,972,772
1968	1,876,341
1969	1,653,169
1970	1,736,468
1971	1,295,738
1972	1,042,286
1973	785,944
1974	690,733
1975	744,950
1976	998,284

Traffic by Commodity for 1976

<u>Commodity</u>	<u>Imported</u>	<u>Exported</u>	<u>Through</u>	<u>Total</u>
Raw fishery	75,196	--	--	75,916
0911-0913				
Crude petroleum	--	230,182	104,872	335,054
1311				
Other 'mined' products	329,694	25,967	--	355,661
0931, 1442-1599				
Petrochemicals	40,456	103,806	--	144,262
2810-3313, except 2879				
Manufactured wood & foods	211	17,641	--	17,852
2011-2711				
Other manufactured prod.	27,493	160,210	--	187,703
3315-3911				
Misc. (all others)	2,789	105,663	--	108,452

Appendix 6.2(19). Waterborne commerce in Mermentau Basin (Mermentau River, Bayou Nizpique and Des Cannes) (U.S. Army Corps of Engineers 1976).

Total Traffic

Year	Total
1967	2,954,527
1968	2,501,103
1969	2,286,097
1970	2,580,255
1971	2,325,340
1972	2,361,095
1973	2,293,503
1974	2,082,674
1975	2,081,661
1976	2,086,473

Traffic by Commodity for 1976

Commodity	Imported	Exported	Through	Total
Grains	--	257,379	--	257,379
0103-0111				
Raw fishery	722	--	722	1,444
0911-0913				
Crude petroleum	80,961	1,404,626	13,925	1,499,512
1311				
Other 'mined' products	137,457	--	--	137,457
0931, 1442-1449				
Petrochemicals	29,005	45,270	478	74,753
2810-3313, except 2879				
Manufactured wood & foods	66	150	--	216
2011-2711				
Other manufactured prod.	12,996	20,908	577	34,481
3315-3911				
Misc. (all others)	26,567	1,012,212	4,171	1,042,950

Total Traffic

Year	Total
1967	49,837,081
1968	52,246,875
1969	55,350,854
1970	55,041,748
1971	60,598,572
1972	56,792,569
1973	51,785,914
1974	51,276,903
1975	49,899,732
1976	55,908,832

Traffic by Commodity for 1976 (Short tons)

Commodity	Imported	Exported	Through	Total
Grains	--	671,932	331,149	1,003,081
0103-0111				
Raw fishery	167,588	--	--	167,588
0911-0913				
Crude petroleum	8,808,496	862,407	7,209,956	16,878,859
1311				
Other 'mined' products	469,584	82,979	2,197,502	2,750,065
0931, 1442-1499				
Petrochemicals	2,405,423	5,482,726	23,272,519	31,160,668
2810-3313, except 2879				
Manufactured wood & foods	1,298	274,751	144,614	420,663
2011-2711				
Other manufactured prod.	68,203	254,395	1,031,863	1,354,461
3315-3911				
Misc. (all others)	12,634	478,164	8,646,897	9,137,695

Appendix 6.2(21). Waterborne commerce in Sabine Basin (Sabine-Neches Waterway and Sabine Pass Harbor) (U.S. Army Corps of Engineers 1976).

<u>Total Traffic</u>	
Year	Total
1967	77,178,385
1968	78,261,206
1969	77,163,412
1970	79,291,102
1971	82,576,969
1972	81,989,291
1973	84,707,017
1974	86,589,660
1975	79,296,056
1976	100,852,284

Traffic by Commodity for 1976

<u>Commodity</u>	<u>Imported</u>	<u>Exported</u>	<u>Through</u>	<u>Total</u>
Grains	31,036	3,304,065	298,940	3,634,041
0103-0111				
Crude petroleum	35,350,220	1,397,254	4,825,038	41,572,512
1311				
Other 'mined' products	1,930,155	18,221,139	1,056,507	4,808,801
0931, 1442-1499				
Petrochemicals	3,204,771	27,111,109	15,918,533	46,234,413
2810-3313, except 2879				
Manufactured wood & foods	13,269	238,252	122,790	374,311
2011-2711				
Other manufactured prod.	166,030	81,879	956,364	1,204,273
3315-3911				
Misc. (all others)	46,528	232,549	1,338,968	1,618,045

<u>Total Traffic</u>	
<u>Year</u>	<u>Total</u>
1967	721,037
1968	1,016,299
1969	966,207
1970	1,323,384
1971	1,149,165
1972	1,381,268
1973	1,517,352
1974	1,661,778
1975	1,414,332
1976	1,227,893

<u>Traffic by Commodity for 1976</u>			
<u>Commodity</u>	<u>Imported</u>	<u>Exported</u>	<u>Through</u> <u>Total</u>
Raw fishery	5	--	5
0911-0913			
Other 'mined' products	280,730	466,779	279,813
0931, 1442-1499			
Petrochemicals	3,148	--	1,709
2810-3313, except 2879			
Other manufactured products	16,857	73,989	--
3315-3911			
Misc. (all others)	66,077	7,318	31,468
			104,863

## APPENDIX 6.3 CHENIER PLAIN BIOLOGICAL DATA

### Appendix 6.3(1). Waterfowl sampling techniques and procedures.

Permanent north-south aerial transect lines were established at approximately 7-1/2 mile intervals across the Chenier Plain in 1968. A fixed wing aircraft was used to fly these lines and to examine a belt transect 1/8 mile each side of the aircraft. Ducks and coots were recorded by species and by habitat type. An elevation of 100 to 150 feet was maintained while conducting the surveys.

Since the aircraft was not equipped with amphibious landing gear a greater (safer) altitude was maintained over large bodies of water. Within the Chenier Plain, Sabine, Calcasieu, Grand and White Lakes were thus excluded from the survey. While diving ducks, principally lesser scaup, were known to be present on these lakes no effort was made to count them because of the unreliability of counts that were conducted at the higher altitude. Birds were difficult to see under conditions of ideal visibility, and became almost impossible to see when the waters were choppy.

Geese were not recorded during these low level waterfowl inventory flights. The extreme flushing distance of geese made it impossible to determine what portion of the airborne flocks were flushed from the survey strip. Some goose inventory data were available for southwest Louisiana (U.S. Soil Conservation Service 1974).

Birds were recorded by five habitat types: Agriculture, Salt Marsh, Brackish Marsh, Intermediate Marsh and Fresh Marsh. Survey records did not delineate bird distribution by land use categories within the Agriculture Habitat type. Bateman (1977 per comm.) stated that as a general rule about 75% of the ducks and 60% of the geese found in the Agriculture Habitat type were in rice fields.

One additional judgment was necessary to utilize the survey information from the agriculture habitat. Since transects ran from the Gulf to U.S. Highway 90 many of the birds recorded in the Agriculture Habitat were between the northern boundary of the Chenier Plain and U.S. Highway 90. After carefully examining topographic maps, Bateman suggested that 80% of the ducks, 80% of the coots, and 60% of the geese inventoried in the Agriculture Habitat should be assigned to the Chenier Plain.

Since the Inland Open Water Habitat was not specifically inventoried, we were unable to use these aerial surveys to estimate waterfowl use. The greatest acreage in this habitat type is in the four large lakes excluded from the surveys for safety reasons. The ducks using water bodies 10 acres in size but smaller than these lakes were included in the count of the adjacent habitat type.

## Appendix 6.3(2). Data acquisition for dominant species of the Chenier Plain.

The first step in gathering data on higher vertebrates in the Chenier Plain was to determine which species are known to occur there. This was accomplished by referring to range maps or species accounts published in the following works: amphibians, Smith (1956), Wright and Wright (1949), Conant (1975); turtles, Carr (1952), Conant (1975); alligator, Conant (1975); lizards, Smith (1946), Conant (1975), Dundee and Rossman (unpublished ms.); birds, Peterson (1963), Robbins et al. (1966); mammals, Hall and Kelson (1959), Lowery (1974b). Range maps and discussions of geographic distribution are often based more or less on inference, and often vary among authors. Exceptions to this are range maps for reptiles given in Rossman and Dundee (unpublished ms.) and for mammals given in Lowery (1974b). Maps in these two publications were compiled from documented occurrences of individuals at specific localities within relatively recent historic times. Another shortcoming of range maps is that they present a static view of dynamic and complex phenomena. Distributions of species are almost constantly changing, either expanding (e.g. cattle egret) or contracting (e.g. whooping crane), so these lists must be viewed as only preliminary.

In an effort to determine representative species, those species whose ranges were mostly outside the Chenier Plain and for which there were only occasional records of occurrence in the area were omitted from the list. Exceptions to this were species that are on the U.S. Department of the Interior's Endangered or Threatened list, or those whose populations are known to be declining. Each year the National Audubon Society publishes a "Blue-list" of bird species whose populations are declining in some part of their geographic range. Though this may not apply to breeding populations in Louisiana, most of these species occur in the Chenier Plain during spring and fall migration and thus merit attention. For most of the remaining species, there is virtually nothing known about population status in Louisiana. It is likely that some of these would have endangered status if they were better known.

### Basin Level - Occurrence of Species in the 14 Habitats

These determinations were based on information gleaned from the above publications and also from Lowery (1974a). In the absence of systematic faunal surveys, habitats listed by the above authors for each species were relied on. This often required some interpretation, and the assignment of a species to a particular habitat was in no way rigorous. For example, Peterson (1963) lists the following habitats for the least sandpiper: "mudflats, grassy marshes, prairie pools, shores". Lowery (1974a) lists "beaches, mudflats, grassy meadows, muddy lakeshores" for this species. The least sandpiper was then assigned to the following habitats as defined in the Chenier Plain project: Inland Open Water, Beach, Salt Marsh, Brackish Marsh, Intermediate Marsh, Fresh Marsh, and Pasture. A similar procedure was followed for each species.

continued

Habitat Level

Sources of information at the habitat level were cited in the tables. Trophic relationships, except where noted, were not specific to Chenier Plain. These relationships vary somewhat both geographically and with time; thus the static view presented in the tables may be somewhat misleading. The information may be used without much error, however, as generally indicative of the kinds of foods a particular species consumes. Constraints of anatomy, physiology and behavior of a species usually limit the kinds of food it can consume to a relatively narrow range.

Seasonal peaks of abundance given for birds refer to the state as a whole, and not to specific habitats. Species whose peaks occur in spring and summer are generally those that spend the winter months in Mexico, Central America, and South America, returning in the spring to nest in the coastal zone. Those that peak in fall and winter usually nest to the north of the coastal zone. A third category of birds, the transients, breed for the most part to the north of the coastal zone and winter to the south. Year-round residents utilize coastal habitats both as wintering and as nesting grounds.

Appendix 6.3(3). Data acquisition for fish species  
of the Chenier Plain.

Notes on the trophic relations, local distributions, relative abundance and economic importance of most fish species known to occur in the Chenier Plain are present in the tabular format for the Nearshore Gulf and Inland Open Water habitats.

In contrast to certain other groups of organisms, fishes of the Chenier Plain have received little study. Consequently the information presented here is derived in large part from the literature, with emphasis on that pertaining to fairly well-studied (and ecologically similar) adjacent areas -- namely, the Galveston Bay System to the west and the Vermilion-Atchafalaya Bay complex to the east. For many species, information derived from informal unpublished observations were included.

Information on trophic relations is available for most of the species, either from regional food habit analyses or by inference from observations on the species or close relatives in other areas. Within a given feeding type (e.g. predator, strainer, grazer, etc.), fishes tend to be highly opportunistic and consume virtually any ingestible materials that are available. Among estuarine species there tends to be considerable overlapping of feeding types, especially when various life-history stages are considered (Darnell, R. M. 1958).

Habitat relations are summarized under the heading Local Distribution. The position normally occupied by the species in the water column (e.g. demersal, pelagic) was noted. In this context the term "pelagic" was used in reference to fishes typically not associated with the bottom, as opposed to the biogeographic connotation of the word (i.e., open ocean dwelling) which has no relevance here. Horizontal patterns of distribution were also noted, since many species tend to occupy mainly the narrow zone along the beach, deeper areas farther offshore, or places where special substrate conditions obtain (e.g., reefs, wrecks, oil platforms, etc.). Inland Open Water Habitat entries for this category emphasize salinity zones and major types of water bodies such as river channels, marsh bayous and lakes, swamps, and so forth. Criteria for salinity zones followed Parker (1965): fresh to brackish (0 to 5 o/oo); low (5 to 10 o/oo); moderate (10 to 20 o/oo); and high (greater than 20 o/oo).

Relative and seasonal abundance entries are intended to give a broad idea of temporal and spatial patterns. In many instances they refer back to habitat information (e.g., locally abundant). Virtually no reliable data

#### Appendix 6.3(3) Concluded

pertaining to the Chenier Plain habitats are available on relative abundance, let alone estimates of standing stocks. Even if studies could be conducted, it is unlikely that reliable estimates of absolute densities would be produced, considering the state of the art (McHugh 1967). A descriptive characterization of the fishes in this basin would require a long-term (minimum 3 years) monthly sampling program employing several gears in representative habitats.

Economic importance entries are intended to give the reader a general impression of the relative significance of the species, with a view toward the possible desire to establish priorities in planning.

Habitat	A Area (km <sup>2</sup> )	B % Area <sup>1</sup>	C % Area <sup>2</sup>	D Production Rate (mt/km <sup>2</sup> /yr)	AxD Estimated Primary Production (mt/yr)
Nearshore Gulf	1,155.99	60.6	--	500 <sup>5</sup>	577,995.0
Inland Open Water	189.77	9.9	25.2	900 <sup>6</sup>	170,793.0
Salt Marsh	15.26	0.8	2.0	2270 <sup>7</sup>	34,640.2
Brackish Marsh	136.03	7.1	18.1	2760 <sup>7</sup>	375,442.8
Intermediate Marsh	147.97	7.8	19.7	2830 <sup>7</sup>	418,755.1
Fresh Marsh	61.05	3.2	8.1	2230 <sup>7</sup>	136,141.5
Impounded Marsh	79.62	4.2	10.6	2000 <sup>3</sup>	159,240.0
Swamp Forest	4.64	0.2	0.6	1360 <sup>4</sup>	6,310.4
Upland Forest	32.53	1.7	4.3	1000 <sup>3</sup>	32,530.0
Beach	3.96	0.2	0.5	0	0
Ridge	26.55	1.4	3.5	1000 <sup>3</sup>	26,550.0
Rice Field	20.56	1.1	2.7	1500 <sup>8</sup>	30,840.0
Agriculture (other than rice)	33.18	1.7	4.4	900 <sup>8</sup>	29,862.0
Pasture	1.99	0.1	0.3	0	0
Urban					
TOTAL	1,909.10			1047	1,999,100.0
Less Nearshore Gulf	753.11			1887	1,421,105.0

<sup>1</sup>including Nearshore <sup>5</sup>Sklar 1976 (See Part III)

<sup>2</sup>excluding Nearshore <sup>6</sup>Day et al. 1973

<sup>3</sup>estimated <sup>7</sup>See Part 4.2.

<sup>4</sup>Conner and Day 1976 <sup>8</sup>See Part 4.6.

Appendix 6.3(5). Calculated net primary production in Mermentau Basin.

Habitat	A		B		C		D		Ax D	
	Area (km <sup>2</sup> )		% Area <sup>1</sup>		% Area <sup>2</sup>		Production rate (mt/km <sup>2</sup> /yr)		Estimated primary production (mt/yr)	
Nearshore Gulf	0		--		--		500 <sup>5</sup>	0		
Inland Open Water	614.97		29.8		29.8		900 <sup>6</sup>	553,473.0		
Salt Marsh	0		0		0		2270 <sup>7</sup>	0		
Brackish Marsh	0		0		0		2760 <sup>7</sup>	0		
Intermediate Marsh	55.19		2.7		2.7		2830 <sup>7</sup>	156,187.7		
Fresh Marsh	735.33		35.6		35.6		2230 <sup>7</sup>	1,639,785.9		
Impounded Marsh	493.99		23.9		23.9		2000 <sup>3</sup>	987,980.0		
Swamp Forest	16.60		0.8		0.8		1360 <sup>4</sup>	22,576.0		
Upland Forest	27.92		1.4		1.4		1000 <sup>3</sup>	27,920.0		
Beach	0		0		0		0	0		
Ridge	126.34		6.2		6.2		1000 <sup>3</sup>	126,340.0		
Rice Field	363.66		17.6		17.6		1500 <sup>8</sup>	545,490.0		
Agriculture (other than rice)	230.69		11.2		11.2		900 <sup>8</sup>	207,621.0		
Pasture	15.95		0.8		0.8		0	0		
Urban										
TOTAL	2,680.64						1592	4,267,373.6		
Less Nearshore Gulf	2,680.64						1592	4,267,373.6		

<sup>1</sup>including Nearshore <sup>5</sup>Sklar 1976 (See Part III)

<sup>2</sup>excluding Nearshore <sup>6</sup>Day et al. 1973

<sup>3</sup>estimated <sup>7</sup>See Part 4.2.

<sup>4</sup>Conner and Day 1976 <sup>8</sup>See Part 4.6.

Habitat	A Area (km <sup>2</sup> )	B % Area <sup>1</sup>	C % Area <sup>2</sup>	D Production rate (mt/km <sup>2</sup> /yr)	AxD Estimated primary production (mt/yr)
Nearshore Gulf	1,006.58	51.5	--	500 <sup>5</sup>	503,290.0
Inland Open Water	56.38	2.9	6.0	900 <sup>6</sup>	50,742.0
Salt Marsh	58.36	3.0	6.2	2270 <sup>7</sup>	132,477.2
Brackish Marsh	142.22	7.3	15.0	2760 <sup>7</sup>	392,527.2
Intermediate Marsh	81.84	4.2	8.6	2830 <sup>7</sup>	231,607.2
Fresh Marsh	0	0	0	2230 <sup>7</sup>	0
Impounded Marsh	488.34	25.0	51.5	2000 <sup>3</sup>	976,680.0
Swamp Forest	0	0	0	1360 <sup>4</sup>	0
Upland Forest	0	0	0	1000 <sup>3</sup>	0
Beach	15.44	0.8	1.6	0	0
Ridge	67.08	3.4	7.1	1000 <sup>3</sup>	67,080.0
Rice Field	6.71	0.3	0.7	1500 <sup>8</sup>	10,065.0
Agriculture (other than rice)	27.51	1.4	2.9	900 <sup>8</sup>	24,759.0
Pasture	4.01	0.2	0.4	0	0
Urban					
TOTAL	1,954.47			1222	2,389,227.6
Less Nearshore Gulf	947.89			1990	1,885,937.6

<sup>1</sup>including Nearshore <sup>5</sup>Sklar 1976 (See Part III)

<sup>2</sup>excluding Nearshore <sup>6</sup>Day et al. 1973

<sup>3</sup>estimated <sup>7</sup>See Part 4.2.

<sup>4</sup>Conner and Day 1976 <sup>8</sup>See Part 4.6.

Appendix 6.3(7). Calculated net primary production in Calcasieu Basin.

Habitat	A Area (km <sup>2</sup> )	B % Area <sup>1</sup>	C % Area <sup>2</sup>	D Production rate (mt/km <sup>2</sup> /yr)	AxD Estimated primary production (mt/yr)
Nearshore Gulf	402.43	22.9	--	500 <sup>5</sup>	201,215.0
Inland Open Water	409.56	23.3	30.3	900 <sup>6</sup>	368,604.0
Salt Marsh	21.45	1.2	1.6	2270 <sup>7</sup>	48,691.5
Brackish Marsh	263.30	15.0	19.4	2760 <sup>7</sup>	726,708.0
Intermediate Marsh	204.12	11.6	15.1	2830 <sup>7</sup>	577,659.6
Fresh Marsh	59.16	3.4	4.4	2230 <sup>7</sup>	131,926.8
Impounded Marsh	97.51	5.6	7.2	2000 <sup>3</sup>	195,020.0
Swamp Forest	7.15	0.4	0.5	1360 <sup>4</sup>	9,724.0
Upland Forest	14.30	0.8	1.1	1000 <sup>3</sup>	14,300.0
Beach	8.44	0.5	0.6	0	0
Ridge	113.70	6.5	8.4	1000 <sup>3</sup>	113,700.0
Rice Field	72.68	4.1	5.4	1500 <sup>8</sup>	109,020.0
Agriculture (other than rice)				(unimp. 250 <sup>8</sup> imp. 900 <sup>8</sup> )	53,730.0
Pasture	59.70	3.4	4.4	0	0
Urban	22.77	1.3	1.7	0	0
TOTAL	1,756.27			1452	2,550,298.9
Less Nearshore Gulf	1,353.84			1735	2,349,083.9

<sup>1</sup>including Nearshore <sup>5</sup>Sklar 1976 (See Part III)

<sup>2</sup>excluding Nearshore <sup>6</sup>Day et al. 1973

<sup>3</sup>estimated <sup>7</sup>See Part 4.2.

<sup>4</sup>Conner and Day 1976 <sup>8</sup>See Part 4.6.

Habitat	A Area (km <sup>2</sup> )	B % Area <sup>1</sup>	C % Area <sup>2</sup>	D Production rate (mt/km <sup>2</sup> /yr)	AxD Estimated primary production (mt/yr)
Nearshore Gulf	842.11	22.4	--	500 <sup>5</sup>	421,055.0
Inland Open Water	472.23	12.6	16.2	9006	425,007.0
Salt Marsh	46.10	1.2	1.6	2270 <sup>7</sup>	104,647.0
Brackish Marsh	384.43	10.2	13.2	2760 <sup>7</sup>	1,061,026.8
Intermediate Marsh	297.88	7.9	10.2	2830 <sup>7</sup>	843,000.4
Fresh Marsh	285.31	7.6	9.8	2230 <sup>7</sup>	636,241.3
Impounded Marsh	412.12	11.0	14.1	2000 <sup>3</sup>	824,240.0
Swamp Forest	36.99	1.0	1.3	1360 <sup>4</sup>	50,306.4
Upland Forest	81.25	2.2	2.8	1000 <sup>3</sup>	81,250.0
Beach	21.24	0.6	0.7	0	0
Ridge	193.91	5.1	6.6	1000 <sup>3</sup>	193,910.0
Rice Field	101.71	2.7	3.5	1500 <sup>8</sup>	152,565.0
Agriculture (other than rice)				(unimp. 250)	
Pasture	393.63	10.5	13.5	imp. 9008	354,267.0
Urban	190.88	5.1	6.5	0	0
TOTAL	3,759.79			1369	5,147,515.9
Less Nearshore Gulf	2,917.77			1620	4,726,460.9

<sup>1</sup>including Nearshore <sup>5</sup>Sklar 1976 (See Part III)

<sup>2</sup>excluding Nearshore <sup>6</sup>Day et al. 1973

<sup>3</sup>estimated <sup>7</sup>See Part 4.2.

<sup>4</sup>Conner and Day 1976 <sup>8</sup>See Part 4.6.

Appendix 6.3(9). Calculated net primary production in East Bay Basin.

Habitat	A Area (km <sup>2</sup> )	B % Total Area <sup>1</sup>	C % Total Area <sup>2</sup>	D Production rate (mt/km <sup>2</sup> /yr)	AxD Estimated primary production (mt/yr)
Nearshore Gulf	305.46	27.3	--	5005	152,730.0
Inland Open Water	265.53	23.7	32.6	9006	238,977.0
Salt Marsh	30.38	2.7	3.7	22707	68,962.6
Brackish Marsh	82.57	7.4	10.2	27607	227,893.2
Intermediate Marsh	61.43	5.5	7.6	28307	173,846.9
Fresh Marsh	22.46	2.0	2.8	22307	50,085.8
Impounded Marsh	46.23	4.1	5.7	20003	92,460.0
Swamp Forest	--	0	0	13604	0
Upland Forest	2.64	0.2	0.3	10003	2,640.0
Beach	12.56	1.1	1.5	0	0
Ridge	70.03	6.3	8.6	10003	70,030.0
Rice Field	37.66	3.4	4.6	15008	56,490.0
Agriculture (other than rice)				(unimp. 250)	
Pasture	156.54	14.0	19.2	imp. 9008	140,886.0
Urban	25.77	2.3	3.2	0	0
TOTAL	1,119.26			1139	1,275,001.5
Less Nearshore Gulf	813.80			1379	1,122,271.5

<sup>1</sup> including Nearshore

<sup>2</sup> excluding Nearshore

<sup>3</sup> estimated

<sup>4</sup> Conner and Day 1976

<sup>5</sup> Sklar 1976 (See Part III)

<sup>6</sup> Day et al. 1973

<sup>7</sup> See Part 4.2.

<sup>8</sup> See Part 4.6.

Appendix 6.3(10). Potential hunting use (man days/yr) by habitat for each Chenier Plain basin<sup>1</sup>.

Habitat Type	Hectures	Deer	Turkey	Dove & Quail	Rabbit	Squirrel	Duck	Geese	Other Marsh Birds	TOTAL
<b>VERMILION</b>										
Salt Marsh	1,526.10	94.0	--	45.3	113.2	--	11.33	56.6	942.8	1,263.2
Brackish Marsh	13,602.99	1,701.1	--	407.4	4,079.2	--	5,092.9	8,509.6	9,259.8	29,050.0
Intermediate Marsh	14,796.84	2,810.4	--	448.1	5,057.1	--	14,062.7	1,875.0	6,898.7	31,152.0
Fresh & Imp. Marsh	13,067.18	5,694.7	--	847.5	4,892.3	--	2,935.4	1,630.8	10,552.0	26,552.5
Pasture	3,318.09	--	--	911.0	738.0	--	--	--	122.7	1,771.7
Rice (all crops)	2,055.85	--	--	530.8	305.5	--	76.4	508.0	91.4	1,512.1
Forest	3,717.12	3,908.5	1,102.6	110.1	1,377.1	2,758.3	413.0	--	--	9,669.5
TOTAL		14,208.7	1,102.6	3,300.2	16,562.4	2,758.3	22,591.7	12,560.0	27,867.4	100,971.3
<b>CHENIER</b>										
Salt Marsh	5,836.10	359.4	--	173.3	433.1	--	43.3	216.5	3,605.3	4,830.9
Brackish Marsh	14,222.18	1,778.5	--	426.0	4,264.9	--	5,324.7	8,897.0	9,681.3	30,372.3
Intermediate Marsh	8,184.14	1,554.4	--	247.8	2,797.1	--	7,778.1	1,037.1	3,815.7	17,230.2
Fresh & Imp. Marsh	48,834.08	21,282.0	--	3,167.2	18,283.2	--	10,969.9	6,094.4	39,434.3	99,231.0
Pasture	2,751.11	--	--	755.3	611.9	--	--	--	101.8	1,469.0
Rice (all crops)	641.05	--	--	165.5	95.2	--	23.8	158.4	28.5	471.4
Forest	0.0	--	--	--	--	--	--	--	--	--
TOTAL		24,974.3	--	4,935.1	26,485.4	--	24,139.8	16,403.4	56,666.9	153,604.9

continued

# Appendix 6.3(10). Continued

Habitat Type	Hectares	Deer	Turkey	Dove & Quail	Rabbit	Squirrel	Duck	Geese	Other Marsh Birds	TOTAL
SABINE										
Salt Marsh	4,609.87	283.9	--	136.9	342.1	--	34.2	171.0	2,847.8	3,815.8
Brackish Marsh	38,443.14	4,807.3	--	1,151.4	11,528.3	--	14,392.9	24,048.9	26,168.9	82,097.7
Intermediate Marsh	29,779.85	5,656.1	--	901.8	10,177.9	--	28,302.3	3,773.6	13,884.2	62,696.9
Fresh & Imp. Marsh	69,751.92	30,398.1	--	4,523.8	26,114.7	--	15,668.8	8,704.9	56,325.8	141,736.1
Pasture	39,363.01	--	--	10,807.3	8,754.8	--	--	--	1,456.1	21,018.2
Rice (all crops)	10,171.19	--	--	2,626.2	1,511.3	--	377.9	2,513.3	452.0	7,480.8
Forest	11,823.96	12,432.8	3,507.4	350.1	4,380.4	8,773.9	1,313.7	--	--	30,758.3
TOTAL	53,578.2	53,578.2	3,507.4	20,497.5	62,809.5	8,773.9	60,089.8	99,211.7	101,134.8	349,602.8
EAST BAY										
Saline Marsh	3,038.04	187.1	--	90.2	225.4	--	22.6	112.7	1,876.8	2,514.8
Brackish Marsh	8,256.98	1,032.5	--	247.3	2,476.1	--	3,091.4	5,165.3	5,620.7	17,633.3
Intermediate Marsh	6,142.86	1,166.7	--	186.0	2,099.4	--	5,838.1	778.4	2,864.0	12,932.6
Fresh & Imp. Marsh	6,868.88	2,993.5	--	445.5	2,571.7	--	1,543.0	857.2	5,546.7	13,957.6
Pasture	15,653.99	--	--	4,297.9	3,481.6	--	--	--	579.1	8,358.6
Rice (all crops)	3,766.09	--	--	972.4	559.6	--	139.9	930.6	167.4	2,769.9
Forest	263.86	277.4	78.3	7.81	97.8	195.8	29.3	--	--	686.4
TOTAL	5,657.2	5,657.2	78.3	6,247.1	11,511.6	195.8	10,664.3	7,844.2	16,654.7	58,853.2

continued

# Appendix 6.3(10). Concluded

Habitat Type	Hectares	Deer	Turkey	Dove & Quail	Rabbit	Squirrel	Duck	Geese	Other Marsh Birds	TOTAL
<b>MENTAUE</b>										
Salt Marsh	0.0	--	--	--	--	--	--	--	--	0
Brackish Marsh	0.0	--	--	--	--	--	--	--	--	0
Intermediate Marsh	5,518.82	1,048.2	--	167.1	1,886.2	--	5,245	699.3	2,573.0	11,618.8
Fresh & Imp. Marsh	122,932.01	53,574.1	--	7,972.8	46,025.0	--	27,615.0	15,311.7	99,269.6	249,798.2
Pasture	23,068.80	--	--	6,333.7	5,130.8	--	--	--	853.3	12,317.8
Rice (all crops)	36,365.84	--	--	9,389.8	5,403.5	--	1,351.3	8,986.0	1,616.2	26,746.7
Forest	4,431.81	4,660	1,314.6	131.2	1,641.8	3,288.6	492.4	--	--	11,528.7
TOTAL		59,282.3	1,314.6	23,994.6	60,087.3	3,288.6	34,703.7	2,502.7	104,312.1	312,010.2
<b>CALCASIEU</b>										
Salt Marsh	2,144.88	132.1	--	63.7	159.2	--	15.9	79.6	1,325	1,775.4
Brackish Marsh	26,329.83	3,292.6	--	788.6	7,895.8	--	9,857.7	16,471.1	17,923.1	56,229.0
Intermediate Marsh	20,411.98	3,876.9	--	618.1	6,976.2	--	19,399.2	2,586.6	9,516.6	42,973.6
Fresh & Imp. Marsh	15,666.94	6,827.7	--	1,016.1	5,865.6	--	3,519.4	1,955.2	12,651.3	31,835.3
Pasture	5,970.05	--	--	1,639.1	1,327.8	--	--	--	220.8	3,187.8
Rice (all crops)	7,267.91	--	--	1,876.6	1,079.9	--	270.1	1,795.9	323.0	5,345.5
Forest	2,144.88	2,255.3	636.3	63.5	794.6	1,591.6	238.3	--	--	5,579.6
TOTAL		16,384.6	636.3	6,065.7	24,099.1	1,591.6	33,300.6	22,888.4	41,959.8	146,926.2

<sup>1</sup> Calculated from even days per ha hunting potential (Table 3.61).

Appendix 6.3(11). Ecological characteristics of important waterfowl species in the Chenier Plain.

Additional life history morphological aspects of selected species of waterfowl are presented here.

Size: Canada geese may weigh as much as 18 pounds, whereas green-wing teal rarely exceed 1 pound.

Clutch size: The number of eggs in a brood may vary from 3 to 4 for most geese, to 20 for some duck species. One or two broods may be hatched annually, depending upon length of breeding season.

Sexual Maturity: Geese and some ducks are not sexually mature until two or three years of age, whereas some duck species mature in less than a year.

Incubation period and mortality of young: Incubation usually requires from 3 to 5 weeks; mortality of young birds ranges from 40% in some ducks down to about 10% for geese.

Nesting: Materials used in the construction of nests, location of nests, and the amount of territory required to defend nests vary greatly.

Pair bond formation: Strongest in geese, which may mate for life. The male takes a part in defending the nest. Pair bond formation is weak in the redhead duck. Some ducks allow other species to raise their offspring.

Family bonds: Geese have strong family bonds and juvenile geese will remain with their parents until they reach breeding age. In many duck species, family bonds end after the young reach their fledgling stage, about 40 to 50 days.

Molt: Geese lack a prenuptial fall molt, whereas male ducks have a fall molt. Postnuptial molt, at the time of fledging among the young, is common to all species and sexes of waterfowl, and is a major reason for the lack of post-fledgling parental bonds in ducks; parents simply cannot defend themselves and their offspring.

Morphology: Waterfowl exhibit greater variation in such measures as bill shape leg placement and wing size than other closely related groups of birds. This variation influences the high degree of habitat exploitation and the low interspecies competition for the same foods. Some differences were mentioned in preceeding sections. One important area of morphology is related to flying ability. In general, diving ducks have less bulky wings than dabbling ducks; diving ducks can move more easily under water, but they require longer distances for take off.

Although waterfowl are closely related taxonomically, they show great interspecific diversity. Each difference between species is indicative of an evolutionary attempt to guarantee resource availability. It is clear that some species have been more successful than others in exploiting their environment. It would be valuable to compare the components of behavior and morphology in greater detail with population dynamics, to increase our ability to project trends in their population numbers.

Lesser snow goose (*Chen caerulescens*)

The lesser snow goose is the most abundant goose in the Chenier Plain and has its wintering grounds heavily concentrated on the western Gulf coast from the Mississippi River Delta to northern Mexico, although the primary range extends only to Corpus Christi, Texas. It occurs in blue and white color phases that reflect breeding populations in northern Canada; the color phases were thought to be separate species prior to studies by Cooch (1961). The blue phase is dominant in the eastern portion of the species range, and the white phase is dominant in the western portions of both breeding and wintering grounds. A color phase gradient extends across the Chenier Plain, where the percentage of blues diminishes from 80% at Gueydan, 65% at Sabine National Wildlife Refuge, 50% at the Louisiana-Texas border, to 20% at Anahuac National Wildlife Refuge (Schroer and Chabreck 1974). These geese arrive in the Chenier Plain with regularity during mid-October, and remain until March or April (Louisiana Wildlife and Fisheries Commission 1962). Peak numbers in the Chenier Plain, as surveyed by the state wildlife agencies, have varied from 300,000 to 600,000 with the greatest variation occurring in Texas. Many geese that formerly used coastal marshes between Galveston Bay and the Sabine River have migrated to the rice prairie region southwest of Houston (Texas Parks and Wildlife Department 1975). Similar changes have been noted in Louisiana, where geese are utilizing the rice fields of southwestern Louisiana to a greater extent than they had previously (Louisiana Wildlife and Fisheries Commission 1961). Louisiana geese, however, are generally counted in rice fields within or proximal to Louisianan Chenier Plain boundaries, such that population fluctuation has not been observed.

Geese are more social than other waterfowl. They tend to have stronger family bonds, with pair bonds lasting years in some cases, and offspring remaining with parents until they become sexually mature (Smithey et al. 1973).

All Chenier Plain geese exhibit similar food habits, so the following discussion is intended to be relevant to other goose species. A number of surveys have noted a preference for roots and tubers of marsh plants, a predilection that causes large areas to be "eaten out" by flocks. As mentioned above, rice fields have become favored feeding grounds during the past 20 to 30 years, especially in late winter after the close of hunting. Rice stubble and unharvested or spilled grain (which accounts for 10% of total planted grain) provides a supplementary food source. As browsers, geese do not dabble for food to the degree that ducks do, and do not show a great preference for flooded fields.

White-fronted goose (*Anser albifrons*)

The white-fronted goose or speckle belly is a relatively common winter resident, although average peak numbers are only about 10% of those for the lesser snow goose. They are primarily a bird of the western flyways, a reflection of the westerly location of their breeding grounds in northwestern Canada and Alaska. These birds migrate to Louisiana and Texas by way of the Mississippi and Central Flyways. The Louisiana Chenier Plain represents the easternmost part of the winter range, and the population is concentrated in the region of Lacassine National Wildlife Refuge, where they take advantage of enhanced fresh marsh conditions as well as protection from hunters. However, white-fronted geese are prized by hunters, and large numbers are taken each year (U.S. Fish and Wildlife Service 1975).

Canada goose (*Branta canadensis*)

The largest of North American geese, the Canada goose is not represented in large numbers in the Chenier Plain, but winters farther to the north, east and west. Historically Canada geese were more numerous than at present in Louisiana, with populations of 30,000 to 50,000 individuals in the 1930's and 1,000 to 5,000 birds within the last decade (Yancey 1960). The primary cause for this decline is the management practices in the northern Mississippi River Valley, where birds "short stop" to take advantage of habitat provided by State and Federal wildlife refuges (Hawkins 1964). The most extreme example of shortstopping occurs at Horicon National Wildlife Refuge, Wisconsin where in 30 years the wintering population has grown from a negligible number to around 200,000.

Canada geese wintering in the Chenier Plain are members of a population which breed in the eastern prairie section of Canada, which includes Ontario and Manitoba (Chabreck et al. 1974). They migrate through the Dakotas, Iowa and thence down the Mississippi Valley. Many geese which formerly made the trip to the Chenier Plain now stop in Missouri. In an effort to reverse this trend, wildlife biologists at Rockefeller Wildlife Refuge have successfully induced Canada geese to breed locally. From the initiation of the project in 1960, the flock had grown to over 1,000 in 1969 (Chabreck 1970).

In regions of Texas outside the Chenier Plain, most notably the rice prairies of central coastal Texas, the Canada geese are numerous, second only to the lesser snow geese (Texas Parks and Wildlife Department 1976).

Mallard (*Anas platyrhynchos*)

The mallard is and has been the most important game bird among all Louisiana waterfowl. Although other species have been present in greater numbers in recent years, mallards are still the largest contributor to the total waterfowl harvest. Reasons for the mallard's popularity among hunters are its large size, its plant diet, and its unequalled adaptability to a variety of habitats which makes it highly accessible to hunters.

Mallards breed in the northern Great Plains of Manitoba, Saskatchewan and the Dakotas, a region without parallel in magnitude of waterfowl pro-

## Appendix 6.3(11) Continued

duction; this region is commonly referred to as the "pothole country". This region contains glacially-derived potholes, ponds and marsh regions with abundant food supplies and protected habitat. Mallards outnumber other species indigenous to the region (Hawkins 1964). The Lower Mississippi River Valley and the coastal marshes and prairies of Louisiana constitute primary wintering grounds (Hawkins 1964). Mallards are present in large numbers in the Chenier Plain from late September until March.

The mallard is a dabbling, whose diet consists almost exclusively of plant materials. Glasgow and Junca (1962) found 98% plant material in 226 mallard crops. However, the diversity of types and parts of plants utilized shows great adaptability by the species to prevailing food supplies. Mallards were among the first ducks to make use of domestic rice as a diet staple. Like geese, they browse roots of marsh plants, and are well suited to dabble for aquatic species, such as widgeongrass. Mallards appear to prefer freshwater marsh vegetation and spend most of the winter in fresh marshes adjacent to rice fields (Louisiana Wildlife and Fisheries Commission 1961).

Mallards generally constitute around 20% of the total duck harvest in Louisiana. For the parishes and counties of Calcasieu, Cameron, Vermilion, Chambers, Jefferson and Orange, the figure is slightly lower (14.8%) because of the great diversity of duck species available to hunters in the Chenier Plain. The point system has also reduced the harvest of mallards. A high point value has been placed on mallards, because of a decline in overwintering numbers related to adverse conditions in their breeding grounds (Louisiana Wildlife and Fisheries Commission 1961).

### Mottled duck (*Anas fulvigula*)

This mallard-like duck is the only year-long resident dabbling on the western Gulf coast and the only abundant breeder in the Chenier Plain marshes. Like the mallard, it is a favored game bird, although its contribution to the harvest numbers is proportionately less.

Mottled ducks are generally nonmigratory, and numbers remain constant throughout the year, with the exception of a small percentage that irregularly migrates to Texas and Mexico (Lowery 1974a). This movement occurs in response to periodic adverse climatic conditions. The northern limit of the mottled duck's range is normally no farther than the coastal rice prairies of the Chenier Plain (Lowery 1974a). Average peak population in the Chenier Plain in spring and summer months numbers about 50,000 birds.

Food habit studies have produced varying estimates of the relative amounts of plant and animal materials eaten by mottled ducks. In an early study, Bent (1923) found that mollusks, crustaceans and insects accounted for 40% of the diet, while Smith (1973) found only 7.0% of their gizzard contents to be of animal origin. Some of this difference may be explained by the consumption of domestic rice by mottled ducks during the past 50 years.

Nesting takes place in intermediate and brackish marshes, near open water bodies, and in grass stands, where the nest is hidden from view of

## Appendix 6.3(11) Continued

predators (Bent 1923). Mottled ducks in general appear to be more tolerant of salinity than mallards and are therefore, able to utilize a wide range of marsh resources.

### Gadwall (*Anas strepera*)

According to Bateman's aerial waterfowl surveys, the gadwall is the most populous duck species in the Chenier Plain, represented by an average of over 600,000 birds at peak times.

Gadwall breeding grounds are further west than those of the mallard, in the western Great Plains and the lakes of the western mountains (Johnsgard 1975). They are not exclusively birds of the Mississippi Flyway, and may travel by way of the West Coast to Mexico, or down the Central Flyway to Texas and Mexico. Those traveling down the Mississippi Flyway winter in Louisiana (Hawkins 1964). Gadwalls arrive in the Chenier Plain around mid-October, reach peak numbers within one month and remain relatively late, into April and May (Lowery 1974a).

Gadwalls do not usually eat rice tailings. Instead they remain in fresh marshes and feed upon submerged aquatic plants such as widgeongrass and pond weed. They also eat seeds of marsh grasses. Smith (1973) found their diet to consist of 35% *Elodea densa*, 33% spikerush, 22% algae and 10% assorted aquatics.

Gadwalls comprise about 9% of the average annual harvest in the six county/parish area of Calcasieu, Cameron, Vermilion, Chambers, Jefferson and Orange, while accounting for almost 16% of the Chenier Plain wintering duck population. Reasons for underhunting appear to be twofold. The gadwall is not considered a table bird of the same caliber as the mallard by many hunters, and its range on its wintering grounds is not as wide as those of other species.

### American wigeon (*Anas americana*)

Also known as the baldpate. This bird occurs in large numbers in the Chenier Plain. It has a large breeding range that roughly coincides with that of both the mallard and gadwall. The range extends northwest to the Bering Sea in Alaska (Kortright 1967). Wigeons arrive in the Chenier Plain in early October and remain until May. Average peak numbers are around 380,000 (10% of the Chenier Plain wintering waterfowl population).

Food habits of wigeons are similar to those of the gadwall (Kortright 1967 and Smith 1973); it dabbles for aquatic plants and algae, and eats sedge and grass seeds. It also eats wild celery and other submerged aquatic plants that are brought to the surface by diving ducks. This is an interesting specialization in food-gathering. In addition, gizzards may contain up to 10% animal food that may be a result of bottom-feeding. Wigeons prefer habitats similar to those of gadwalls, and like gadwalls are not common rice browsers.

## Appendix 6.3(11) Continued

The wigeon harvest approaches 6% of the Chenier Plain total duck kill. They are preferred by hunters because of their flesh (Yancey 1959).

### Green-winged teal (*Anas crecca*)

The green-winged teal is the second most numerous species on the Chenier Plain, comprising 15.8% of all waterfowl. They are the smallest species of waterfowl in Chenier Plain, and along with mallards, the most widely hunted. The green-winged teal is distributed from Alaska to Newfoundland during the breeding season. The species winters along both coasts of the U.S. and Mexico. They are common winter residents in the Chenier Plain between early October and late March; peak densities occur in December and January. Dabbling is limited to shallow water because of their small size. They feed on a wide variety of plants. Kortright (1967) reported the diet of the green-wing to include 39% sedges, 12% pondweeds, 11% grasses and 9% animal matter. Smith (1975), in a later survey, noted an increased amount of rice, 13.7%. Indeed, Bateman's surveys showed a large number of these birds in agricultural areas.

Green-winged teal are among the most adaptable of waterfowl. They consume many plant species and occupy a wide range of habitats. Green-wings cluster in flocks on sanctuaries to a greater extent than most ducks; reasons for this phenomenon have not been examined. It would be interesting to determine whether flocking is a response to an individual's relative ability to defend itself, which might be lower in the case of this small duck than for other larger species.

### Blue-winged teal (*Anas discors*)

The distribution of blue-winged teal is uniformly more southern than any other major migratory species (Kortwright 1967). Their extreme response to cold weather is demonstrated by their early August arrival in the Chenier Plain (Lowery 1974a). During most years, blue-wings are transmigrants and depart from the Chenier Plain after a month or so for permanent wintering grounds as far south as Buenos Aires (Johnsgard 1975), a distance of 7,000 miles from their extreme northerly range. They return to the Chenier Plain in February on their way back to northern breeding grounds. The Louisiana Wildlife and Fisheries Commission has open a blue-winged teal season in early October, shortly after numbers normally begin to decline. In certain years blue-wings congregate in greater than average numbers on the Chenier Plain. Following Hurricane Audrey in 1957, a wintering population of about 250,000 birds was observed (Chamberlain 1959). The blue-winged teal probably breeds more frequently in the Chenier Plain than other migratory species.

Blue-wings alter their diets to utilize prevailing food supplies. Both animal matter (Bennett 1938) and grains are consumed (Smith 1973).

### Northern shoveler (*Anas platyrhynchos*)

Shovelers are ducks with large, spatulate bills which have comblike lamellae around their perimeter for straining water (Johnsgard 1975). Shovelers are found in higher salinity marshes than most dabblers. They

#### Appendix 6.3(11) Continued

prefer shallow turbid waters in which to feed. Crustaceans often may constitute up to 30 to 40% of the total diet, but shovelers largely prefer aquatics such as *Potamogeton*, and the vegetative parts of *Scirpus* and other rushes.

Shovelers are normally less numerous than other ducks in the Chenier Plain and reach peak numbers of around 150,000 in mid-winter. They arrive reasonably early in late September and migrate northward in late April.

Shovelers are not considered choice ducks by hunters because of their gamey quality.

#### Northern pintail (*Anas acuta*)

Pintails are the second most numerous of North American waterfowl species, following mallards. They breed from Mexico to Ellesmere Island, are the most common duck in Alaska, and are abundant throughout Canada and the northwestern and central United States. They winter throughout North America from around 40° North latitude south to Colombia. In Texas they were the most abundant winter duck during 1974-75. Pintails arrive in mid-October (Lowery 1974a) and leave early in the spring for breeding areas (Kortright 1967). The Louisiana Wildlife and Fisheries Commission reported in 1961 that pintails arrive in Louisiana before the bulk of the wintering duck population. It was the third most numerous duck in the Chenier Plain, accounting for 12.2% of all waterfowl.

Pintails consume diverse foodstuffs. Their long necks enable them to reach food in greater water depths than most dabblers, and they are frequent divers. In general, their diet and the mallard's are the most varied of all waterfowl, but pintails seem to prefer animal matter more than mallards (Johnsgard 1975). Unlike mallards they seem to prefer water when feeding on rice stubble, but they still are one of the most frequent consumers of rice. They are more adapted to higher salinities than mallards, and regularly feed in brackish areas.

#### Lesser scaup (*Aythya affinis*)

This is the most common diving duck found on the Louisiana coast. Although aerial surveys fail to indicate such, some estimates of their wintering populations exceed one million individuals (Louisiana Wildlife and Fisheries Commission 1961). Lesser scaup are frequently found on large open water bodies. Huge "rafts" of these birds can be seen on marsh lakes and in the Gulf. They occupy an interesting intermediate niche between more inland divers and the sea ducks. They appear not to need the large open water expanses used by the latter group year-round, but can tolerate seawater salinities and can utilize resources available to both groups.

Lesser scaup consume large quantities of animal matter. Preferred species include *Rangia cuneata*, a clam which is abundant in water of low salinity. In a comprehensive gut analysis, animal foods constituted a clear majority of the lesser scaup's diet; percentages varied from 93.5% for premigratory birds to 63.7% for birds on the wintering grounds. Aquatic plants composed the remainder.

## Appendix 6.3(11) Continued

Scaup are numerous on the Canadian prairies, and are found in western Alaska. They arrive in the Chenier Plain in mid-October and depart in late April. Their winter range resembles that of the blue-winged teal, but it is not as southerly (Johnsgard 1975). Hunting pressure on scaup is not great, both because of the relative inaccessibility of their habitat and because they are considered to be a low quality table duck by Chenier Plain hunters.

### Other Species

Because of their small contribution to the Chenier Plain waterfowl population, the following are considered in less detail than the previous species.

#### Wood duck (*Aix sponsa*)

Wood ducks are perching ducks and are numerous in many regions of the eastern United States, although no population figures are available for the Chenier Plain. The species inhabits swamps and bottomland forests, where it nests in trees. Wood ducks consume fruits, nuts, and green tree shoots and dabble for seeds and vegetative parts of aquatic plants. The species nests in the Chenier Plain.

Wood ducks are popular game birds and are highly accessible to hunters. In the Louisiana portion of the Chenier Plain, they account for 1% of the total duck harvest.

#### Ring-necked duck (*Aythya collaris*)

The second most numerous of Chenier Plain diving ducks, these birds are common breeders in the Great Lakes region of the United States and across midwestern Canada (Johnsgard 1975). About 20% of the North American population winters on the Chenier Plain. The species is present in the Chenier Plain from late October to early April, and feeds on submerged aquatics, bulrush seeds, and molluscs. The latter food composes about 25% of the diet. Ring-necked ducks prefer freshwater conditions and eat more rice than other diving ducks.

#### Hooded merganser (*Lophodytes cucullatus*)

The hooded merganser is a common nester in the Chenier Plain, and like the wood duck, nests in tree cavities.

Whereas Stewart (1962) reported that hooded mergansers evidently avoided salt water, Bateman's surveys indicated they used brackish and salt marshes more than any other duck. Food habits of the hooded merganser are described in Appendix 6.3(13). The species is rarely hunted, because of the poor palatability of their flesh.

#### Fulvous tree-duck (*Dendrocygna bicolor*)

The rarest of all Chenier Plain waterfowl, these ducks have the most tropical range, rarely venturing north of the coastal rice prairies of Louisiana. They migrate south along the Gulf coast to the Bay of Campeche, Mexico in winter (Kortwright 1967). They differ morphologically from other

ducks by their long necks and stout legs, and are actually closer in phylogeny to geese than ducks.

Fulvous tree ducks appear to favor seeds and grains, such as *Echinochloa* and rice, but are adept at both diving and dabbling (Johnsgard 1975).

Redhead (*Aythya americana*)

Although common in coastal marshes of south Texas and the Chandeleur Islands off the Louisiana coast, the redhead duck is rare in the Chenier Plain. This diving duck is commonly found along parts of the Gulf coast between November and February. Evidence suggests the species is declining in numbers (Louisiana Wildlife and Fisheries Commission 1961).

Canvasback (*Aythya valisineria*)

The canvasback is the largest of diving ducks, and is popular with hunters. The species is rare in the Chenier Plain, and populations are declining (Louisiana Wildlife and Fisheries Commission 1961). The canvasback feeds primarily of wild celery and other aquatic plants.

American coot (*Fulica americana*)

American coots are ducklike members of the rail family, and resemble their relatives in most biological respects, although they are easily confused with some diving ducks by the uninitiated bird watcher. Coots prefer freshwater marshes where they feed on aquatic plants. They migrate from their breeding grounds across northern North America in early September, and are common in the Chenier Plain until late spring. Some have been known to nest in the Chenier Plain. They winter in large numbers here, but are not considered a desirable game bird. They are poor flyers and require long distances to become airborne.

### Methodology and Applications

Much of the quantitative analyses of waterfowl population dynamics were adopted from the Louisiana periodic Waterfowl Inventory, an aerial survey conducted by Hugh A. Bateman, Jr., waterfowl biologist with the Louisiana Wildlife and Fisheries Commission. This survey is a continuation of aerial surveys initiated by Richard K. Yancey in 1949. The present survey is more statistically sound, from a sampling viewpoint, than previous waterfowl counts in Louisiana.

Since September 1969, the survey has been conducted with a Cessna aircraft, with observer and pilot, each counting birds on their respective sides of the plane. The plane is flown at an altitude of approximately 200 ft. Birds on large open water bodies are not counted, since the aircraft must fly at altitudes of 900 ft over these situations for safety reasons.

Transects follow longitudinal lines at 7.5' intervals with termini at U.S. Highway 90 in the north, and the Gulf coast line in the south. From Marsh Island east, the transect interval is increased to 15' of longitude, because of the subsequently great increase in average transect length.

#### Appendix 6.3(11) Concluded

Transect width is one-quarter mile. These transects were originally established by Chabreck et al. (1968b) for the purpose of mapping vegetation types in the Louisiana coastal area. Eleven species of ducks and coots were counted.

Weather permitting, flights are attempted on a monthly basis, although there is a great deal of variability in both time between surveys and the number of days required to complete a single survey. With few exceptions, the interval between surveys was 9 to 46 days and the time required to complete a survey ranged from 5 to 14 days. There were no flights from March to July (with the exception of 1971 when surveys were flown all months except July). The primary application of the survey has been in setting hunting regulations; therefore, census emphasis has been placed on migratory species that constitute the bulk of Louisiana's waterfowl population. Survey coverage is complete for all years between September and January, and much of the graphical output uses only this interval.

Appendix 6.3(12). List of plants by habitat for Rockefeller Refuge  
(Adams 1956).

Plant	HABITAT					
	Fresh	Brackish	Salt	Beach	Levee	Chenier
Gulfcoast waterhemp ( <u>Acnida alabamensis</u> )		X			X	
Alligatorweed ( <u>Alternanthera philoxeroides</u> )	X					
Giant ragweed ( <u>Ambrosia trifida</u> )					X	X
Slim aster ( <u>Aster subulatus</u> )	X	X	X		X	X
Saline aster ( <u>A. tenuifolius</u> )		X	X		X	
Salt cedar ( <u>Atriplex</u> sp.)		X	X	X	X	
Buckrush ( <u>Baccharis halimifolia</u> )				X	X	
Sea oxeye ( <u>Borrchia frutescens</u> )		X	X	X	X	
Spiny thistle ( <u>Cardus</u> sp.)		X			X	
Hackberry ( <u>Celtis laevigata</u> )						X
Sawgrass ( <u>Cladium jamaicense</u> )	X	X	X			
Dodder ( <u>Cuscuta</u> sp.)				X	X	X
Umbrella sedge ( <u>Cyperus filicinus</u> )	X	X	X		X	
Rattlebox ( <u>Daubentonia drummondii</u> )					X	X
Saltmarsh grass ( <u>Distichlis spicata</u> )		X	X			
Wild millet ( <u>Echinochloa walteri</u> )		X			X	

continued

	<u>Fresh</u>	<u>Brackish</u>	<u>Salt</u>	<u>Beach</u>	<u>Levee</u>	<u>Chenier</u>
Yerta-de-tage ( <u>Eclipta alba</u> )	X	X				
Water-hyacinth ( <u>Eichhornia crassipes</u> )	X	X				
Common spikerush ( <u>Eleocharis palustris</u> )		X	X			
Dwarf spikerush ( <u>E. parvula</u> )		X	X			
Seaside heliotrope ( <u>Heliotropium curassavicum</u> )	X	X	X	X	X	
Rosemallow ( <u>Hibiscus lasiocarpus</u> )	X	X			X	X
Spiderlily ( <u>Hymenocallis crassifolia</u> )	X					
Marsh morningglory ( <u>Ipomea sagittata</u> )		X				
Marsh morningglory ( <u>I. stolonifera</u> )		X				
Giant blue iris ( <u>Iris giganteaerulea</u> )	X	X				
Swampweed ( <u>Iva ciliata</u> )					X	X
Bigleaf swampweed ( <u>Iva frutescens</u> )			X	X	X	X
Black rush ( <u>Juncus roemerianus</u> )		X	X	X		
False rosemallow ( <u>Kosteletzkya virginica</u> )	X	X	X		X	
Duckweed ( <u>Lemna minor</u> )	X	X				
Matrimonyvine ( <u>Lycium halimifolium</u> )					X	X
Marsh loosestrife ( <u>Lythrum lineare</u> )		X	X		X	

continued

	<u>Fresh</u>	<u>Brackish</u>	<u>Salt</u>	<u>Beach</u>	<u>Levee</u>	<u>Chenier</u>
Saltwort ( <u>Salicornia bigelovii</u> )			X	X		
American 3-square ( <u>Scirpus americanus</u> )	X					
California bulrush ( <u>S. californicus</u> )	X	X				
Olney 3-square ( <u>S. olneyi</u> )	X	X	X			
Leafy 3-square ( <u>S. robustus</u> )		X	X			
Butterweed ( <u>Senecio glabellus</u> )	X	X				
Tall sesban ( <u>Sesbania exaltata</u> )					X	X
Giant foxtail ( <u>Setaria magna</u> )	X	X			X	
Sawbriar ( <u>Smilax</u> sp.)					X	
Seaside goldenrod ( <u>Solidago sempervirens</u> )	X	X	X	X	X	
Oystergrass ( <u>Spartina alterniflora</u> )	X	X	X	X	X	
Hogcane ( <u>S. cynosuroides</u> )	X	X				
Saltmarsh wiregrass ( <u>S. patens</u> )		X	X			
Broadleaf cattail ( <u>Typha latifolia</u> )	X	X				
Louisiana vetch ( <u>Vicia ludoviciana</u> )					X	X
Cowpea ( <u>Vigna repens</u> )	X	X			X	
Giant cutgrass ( <u>Zizaniopsis miliacea</u> )	X	X				

Appendix 6.3(13). Representative vertebrate species of Impounded Marsh Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Nocophthalmus viridescens</u>			
Central newt			
<u>Amphiuma tridactylum</u>			
Three-toed amphiuma			
<u>Siren intermedia</u>			
Lesser siren			
<u>Eurycea quadridigitata</u>			
Dwarf salamander			
<u>Bufo valliceps</u>			
Gulf coast toad			
<u>Bufo woodhousei</u>			
Woodhouse's toad			
<u>Acris crepitans</u>			
Northern cricket frog			
<u>Hyla cinerea</u>	Insects (Wright and Wright 1949)		
Green tree frog			
<u>Hyla crucifer</u>			
Spring peeper			
<u>Hyla squirella</u>			
Squirrel tree frog			
<u>Pseudacris triseriata</u>			
Upland chorus frog			
<u>Rana catesbeiana</u>			
Bullfrog			

continued

Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Rana clamitans</u> Bronze frog			
<u>Rana grylio</u> Pig frog			
<u>Rana utricularia</u> Southern leopard frog			
<u>Gastrophryne carolinensis</u> <del>Eastern</del> narrow-mouthed toad			
<u>REPTILES</u>			
<u>Alligator mississippiensis</u> American alligator	61% crayfish; also birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)		0.07/acre (Joanen and McNease 1972)
<u>Chelydra serpentina</u> Snapping turtle	fish (35.4%), other vertebrates (1.1%, carrion (19.6%), invertebrates (7.8%), plant material (36.2%) (Carr 1952)		
<u>Macrolemys temminckii</u> Alligator snapping turtle	fish, frogs, snakes, other turtles, mussels, various aquatic grasses (Carr 1952)		
<u>Kinosternon subrubrum</u> Mississippi mud turtle	insects, small snails (Carr 1952)		
<u>Sternotherus odoratus</u> Stinkpot	fish (46.3%), mollusks (40.1%), also crayfish, insects, plant material for Michigan (Carr 1952)		
<u>Chrysemys concinna</u> Mobile cooter			
<u>Chrysemys floridana</u> Missouri slider			

# Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Chrysemys picta</u> Southern painted turtle	juvenile: 13% plant, 85% animal adult: 88% plant, 10% animal (Carr 1952)		
<u>Chrysemys scripta</u> Red-eared turtle	juvenile: 30% plant, 70% animal (e.g., amphipods) adult: 89% plant, 11% animal (e.g., crayfish) (Carr 1952)		
<u>Delrochelys reticularia</u> Chicken turtle	tadpoles, crayfish, plant material (Carr 1952)		
<u>Graptemys kohni</u> Mississippi map turtle			
<u>Graptemys pseudogeographica</u> Sabine map turtle			
<u>Malademyx terrapin</u> Diamondback terrapin	crustaceans, mollusks, roots of marsh plants, carrion (Carr 1952)		
<u>Trionyx spiniferus</u> Spiny softshell	carnivorous	Breeds: May Hatch: July-Sept. (Wright and Wright 1957)	
<u>Coluber constrictor</u> Racer	insects, frogs, snakes, young birds (Wright and Wright 1957)		
<u>Farancia abacura</u> Mud snake	<u>Amphiuma</u> , <u>Siren</u> , frogs (Wright and Wright 1957)		
<u>Lampropeltis getulus</u> Speckled king snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Natrix cyclopion</u> Green water snake	Gambusia (77.6%); other fish (18.6%); tadpoles (3.5%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Natrix fasciata confluens</u> Broad-banded water snake	fish (86.9%); frogs and toads (6.4%); tadpoles (4.8%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Natrix fasciata clarki</u> Gulf salt marsh snake			

continued

# Appendix 6.3(13). Continued.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>Natrix erythrogaster</u> Yellow-bellied water snake			
<u>Natrix rhombifera</u> Diamondback water snake			
<u>Regina grahami</u> Graham's water snake	crayfish (100%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Regina rigida</u> Glossy water snake	Siren, fish, crayfish (Wright and Wright 1957)		
<u>Storeria dekayi</u> Brown snake	earthworms, snails, insects, small frogs, fish (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Thamnophis airtalis</u> Garter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		
<u>BIRDS</u>			
<u>Podiceps auritus</u> Horned grebe	shrimp and other crustaceans, small fish, some plant material, feathers (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Podiceps nigricollis</u> Eared grebe	insects, shrimp, some water plants, feathers (Bent 1919)	Oct.-May (Lowery 1974a)	
<u>Podilymbus podiceps</u> Pied-billed grebe	mostly animal; aquatic worms and insects, snails small frogs and fish; plants: seeds and soft parts (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Pelecanus erythrorhynchos</u> American white pelican	fish (Bent 1922)	Sept.-May (Lowery 1974a)	

# Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Phalacrocorax auritus</u> Double-crested cormorant	mostly fish; rarely crustaceans, mollusks, eel grass (Bent 1922)	Sept.-Apr.	"Blue List" Nat. Aud. Soc. (1976)
<u>Phalacrocorax olivaceus</u> Olivaceous cormorant		Year-round	
<u>Anhinga anhinga</u> Anhinga	fish, leeches, shrimp, crayfish, insects, salamanders, frogs, young turtles and alligators, snakes (Bent 1922)	Mar.-Oct. (Lowery 1974a)	
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974)	Year-round (Lowery 1974a)	Invaded La. in 1955
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish,	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctonassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Ixobrychus exilis</u> Least bittern	slugs, leeches, insects, small fish, tadpoles, small frogs, lizards, small mammals	Apr.-Sept. (Lowery 1974a)	

continued

# Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u><i>Botaurus lentiginosus</i></u> American bittern	mollusks, crayfish, insects, small fish, frogs, lizards, small snakes, mice (Bent 1926)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u><i>Mycteria americana</i></u> Wood stork	fish, aquatic reptiles, insects (Bent 1926)	Jun.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u><i>Plegadis falcinellus</i></u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	
<u><i>Plegadis chihli</i></u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u><i>Eudocimus albus</i></u> White ibis	mostly crayfish; also other crustaceans, slugs, snails, small snakes, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u><i>Ajaja ajaja</i></u> Roseate spoonbill	fish, shrimp, insects (Bent 1926)	Year-round (Lowery 1974a)	
<u><i>Branta canadensis</i></u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges; some mollusks, crustaceans (Bent 1925)	Oct.-Feb. (Lowery 1974a)	Introduced at Rockefeller Refuge
<u><i>Anser albifrons</i></u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	
<u><i>Chen caerulescens</i></u> Snow goose	almost wholly plants: grain, roots and culms of grasses; some insects, mollusks (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u><i>Dendrocygna bicolor</i></u> Fulvous tree duck	mostly seeds of grasses and weeds; also grasses, grain (Bent 1923)	Apr.-Sept. (Lowery 1974)	
<u><i>Anas platyrhynchos</i></u> Mallard	90% plant: sedges, grasses, smartweeds, pondweeds, duck-weeds, tubers, mast; 10% animal: insects, crustaceans, mollusks; fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u><i>Anas rubripes</i></u> Black duck	mast, grain, mollusks, crustaceans (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u><i>Anas fulvigula</i></u> Mottled duck	40% animal: mollusks, insects, crayfish, small fish 60% plant: mostly grasses (plants and seeds (Bent 1926)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Anas strepera</u> Gadwall	principally plants (Bent 1953)	Oct.-Mar. (Lowery 1974a)	
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas crecca</u> Green-winged teal	10% animal: insects, mollusks, crustaceans 90% plant: sedges, pondweeds and grasses (62%); other (28%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas discors</u> Blue-winged teal	30% animal: worms, mollusks, insects, tadpoles 70% plant: sedges, pondweeds and grasses (43.6%); other (26.4%) (Bent 1923)	Feb.-Apr.; Sept.-Nov. (Lowery 1974a)	
<u>Anas clypeata</u> Northern shoveler	animal: worms, small mollusks, insects, shrimp, small fish, small frogs; plant: buds and young shoots of rushes and other aquatics; grasses (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Anas americana</u> American wigeon	90% plant, 10% animal (from Sept.-Apr.) (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya americana</u> Redhead	stems and buds of <u>Valisneria</u> , other aquatic plants, marine animals (Bent 1923)	Nov.-Feb. (Lowery 1974a)	
<u>Aythya collaris</u> Ring-necked duck	19% animal: insects, mollusks; 81% plant: aquatic plants, sedges, grasses, smartweeds (Cottam 1939)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya valisineria</u> Canvasback	<u>Valisneria</u> , other aquatic plants, water lily and lotus seeds, small fish, crustaceans, mollusks, insects (Bent 1923)	Oct.-Mar. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Aythya marila</u> Greater scaup	crustaceans, mollusks, aquatic plants (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Aythya affinis</u> Lesser scaup	similar to <u>A. marila</u> (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Bucephala clangula</u> Common goldeneye	similar to scaup, but also minnows, small frogs, tadpoles, crayfish, snails, insects (Bent 1923)	Nov.-Feb. (Lowery 1974a)	

continued

# Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Bucephala albeola</u> Bufflehead		Nov.-Mar. (Lowery 1974a)	
<u>Clangula hyemalis</u> <b>Oldsquaw</b>	88% animal: crustaceans, mollusks, insects, fish; 12% plant: grasses, pondweeds, misc. (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	
<u>Melanitta deglandi</u> White-winged scoter	94% animal: mollusks; crustaceans, insects, fish; 6% plant: aquatic plants (Cottam 1939)	Oct.-May (Lowery 1974a)	
<u>Oxyura jamaicensis</u> Ruddy duck	72% plant: aquatic plants, grasses, sedges; 28% animal: insects, mollusks, crustaceans (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	
<u>Lophodytes cucullatus</u> Hooded merganser	mostly insects; also small fish, frogs, mollusks, crayfish, roots of aquatic plants, seeds, grain (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Mergus serrator</u> Red-breasted merganser	mostly fish; also crustaceans and mollusks (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Circus cyaneus</u> Marsh hawk	small mammals, herons, ducks, coots, rails, shorebirds, songbirds	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Pandion haliaetus</u> Osprey	bowfin, carp, catfish, eel, flounder, goldfish, menhaden, mullet, pickerel, shad, sunfish. No carrion (Bent 1937)	Sept.-Dec.; Feb.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco peregrinus</u> Peregrine falcon	primarily birds; also mammals, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco sparverius</u> American kestrel	insects, amphibians, reptiles, birds, mammals (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Rallus elegans</u> King rail	grass seeds, insects, slugs, leeches, tadpoles, crayfish (Bent 1926)	Year-round (Lowery 1974a)	
<u>Rallus longirostris</u> Clapper rail	small crabs, snails, small fish, aquatic insects, plants (Bent 1926)	Year-round (Lowery 1974a)	

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Rallus limicola</u> Virginia rail	earthworms, crayfish, insects, snails, small fish, some grass seeds (Bent 1926)	Oct.-Apr. (Lowery 1974a)	
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Coturnicops noveboracensis</u> Yellow rail		Oct.-May (Lowery 1974a)	
<u>Laterallus jamaicensis</u> Black rail		Nov.-Apr. (Lowery 1974a)	
<u>Porphyrio martinica</u> Purple gallinule	rice, other seeds, worms, mollusks (Bent 1926)	Apr.-Sept. (Lowery 1974a)	
<u>Gallinula chloropus</u> Common gallinule	seeds, roots, soft parts of aquatic plants, snails insects, worms (Bent 1926)	Apr.-Nov. (Lowery 1974a)	
<u>Fulica americana</u> American coot	leaves, fronds, seeds and roots of aquatic plants; wild celery, algae; worms, snails, insects, small fish, tadpoles (Bent 1926)	Sept.-Apr. (Lowery 1974a)	
<u>Himantopus mexicanus</u> Black-necked stilt	99% animal: mostly insects; also crayfish, snails, tiny fish. 1% plant: seeds of aquatic and marsh plants (Bent 1927)	Mar.-Oct. (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Cheradrius semipalmatus</u> Semipalmated plover	worms, small mollusks, crustaceans, insects (Bent 1929)	Mar.-May; Jul.-Nov. (Lowery 1974a)	
<u>Charadrius vociferus</u> Killdeer	98% insects and other animal matter (e.g., snails, crabs, crayfish); 2% plant: weed and grass seeds (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Pluvialis dominica</u> American golden plover	almost entirely insects; also small mollusks and crustaceans; some grass seeds, seaweed (Bent 1929)	Mar.-May (Lowery 1974)	
<u>Pluvialis squatarola</u> Black-bellied plover	marine worms, small mollusks, crustaceans, insects	Sept.-May (Lowery 1974a)	

continued

# Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Limosa haemastica</u> Hudsonian godwit	worms, mollusks, various insects, crustaceans, other small marine life	Apr.-Jun. (Lowery 1974a)	
<u>Limosa fedoa</u> Marbled godwit	insects, mollusks (Bent 1927)	Oct.-Nov. (Lowery 1974a)	
<u>Neminius phaeopus</u> Whimbrel	earthworms, sandworms, insects, mollusks, small crustaceans, some plant material	Apr.-May (Lowery 1974a)	
<u>Tringa melanolenca</u> Greater yellowlegs	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa flavipes</u> Lesser yellowlegs	mostly insects; also small crustaceans, small fish worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Catoptrophorus semipalmatus</u> Willet	worms, insects, small crabs, small mollusks, small fish, grasses, tender roots, seeds, rice (Bent 1929)	Year-round (Lowery 1974a)	
<u>Actitis macularia</u> Spotted sandpiper	insects, occasionally small fish	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Steganopus tricolor</u> Wilson's phalarope	aquatic insects and their larvae; amphipods; seeds of aquatic plants (Bent 1927)	Apr.-May; Jul.-Sept.	
<u>Capella gallinago</u> Common snipe	mostly earthworms, also other worms, insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Limnodromus scolopaceus</u> Long-billed dowitcher	insect larvae, some plant material (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Callidris pusilla</u> Semipalmated sandpiper	small mollusks, worms, insects, traces of plant material (Bent 1927)	Apr.-May; Sept.-Nov. (Lowery 1974a)	

continued

Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug-May (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms	Aug.-Apr. (Lowery 1974a)	
<u>Calidris fuscicollis</u> White-rumped sandpiper	78% animal: snails, marine worms 22% plant: seeds (Bent 1927)	Apr.-Jun. (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Stilt sandpiper	animal (70%): small worms, mollusks, insects plant (30%): seeds (Bent 1927)	Apr.-May (Lowery 1974a)	
<u>Larus argentatus</u> Herring gull	dead fish and other detritus; live fish, crustaceans mollusks, echinoderms, worms, insects (Bent 1921)	Nov.-Apr. (Lowery 1974a)	
<u>Larus delawarensis</u> Ring-billed gull	refuse, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Larus atricilla</u> Laughing gull	mostly small fish; also eggs of other seabirds, refuse	Year-round (Lowery 1974a)	
<u>Larus philadelphia</u> Bonaparte's gull	small fish, crustaceans, marine worms, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Gelochelidon nilotica</u> Gull-billed tern	insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sterna forsteri</u> Forster's tern	insects, floating carrion (Bent 1921)	Year-round (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sterna hirundo</u> Common tern	almost wholly small fish; also shrimp and aquatic insects (Bent 1921)	Sept.-May (Lowery 1974a)	
<u>Sterna albifrons</u> Least tern	small fish; some crustaceans and insects (Bent 1921)	Apr.-Aug. (Lowery 1974a)	
<u>Sterna maxima</u> Royal tern	almost wholly small fish; also crabs, shrimp (Bent 1921)	Year-round (Lowery 1974a)	
<u>Sterna caspia</u> Caspian tern	almost wholly small fish; also shrimp and other surface-swimming aquatic life (Bent 1921)	Year-round (Lowery 1974a)	
<u>Chlidonias niger</u> Black tern	small fish, insects (Bent 1921)	Apr.-Sept. (Lowery 1974a) (non-breeding)	"Blue List" Nat. Aud. Soc. (1976)
<u>Asia flammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Megasceryle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Black swallow	insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Stelgidopteryx ruficollis</u> Rough-winged swallow	insects (Bent 1942)	Mar.-Nov.	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects, some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Petrochelidon pyrrhonota</u> Cliff swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

# Appendix 6.3(13). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Corvus ossifragus</u> Fish crow	carriion, crustaceans, fish, bird eggs, insects; berries tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Cistothorus palustris</u> Marsh wren	insects; especially Coleoptera and Diptera (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus platensis</u> Sedge wren	insects, spiders (Bent 1948)	Oct.--Mar. (Lowery 1974a)	
<u>Anthus spinoletta</u> Water pipit		Nov.--Mar. (Lowery 1974a)	
<u>Geothlypis trichas</u> <del>Common</del> yellowthroat	mostly insects, a few seeds (Bent 1953)	Mar.--Oct. (Lowery 1974a)	
<u>Delichonyx pryzivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: fruit, grain, weed seeds; 27% animal: mostly insects, some spiders and myriapods (Bent 1953)	Year-round (Lowery 1974a)	
<u>Quiscalus mexicanus</u> Great-tailed grackle	insects, fish, worms, small lizards, tadpoles, eggs and young of other birds (Bent 1958)	Mar.--Aug. (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, tadpoles, frogs, small fish, spiders (Bent 1958)	Year-round (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	92% plant: seeds; 8% animal: mostly insects (winter) (Bent 1968)	Oct.--Apr. (Lowery 1974a)	
<u>Ammodramus caudatus</u> Sharp-tailed sparrow	81% animal: insects, amphipods, spiders, small snails; 19% plant: grasses, seeds (Bent 1968)	Nov.--Mar. (Lowery 1974a)	
<u>Ammodramus maritima</u> Seaside sparrow	marine worms, crustaceans, insects, spiders, mollusks, weed and grass seeds (Bent 1968)	Year-round (Lowery 1974a)	
<u>Melospiza georgiana</u> Swamp sparrow	55% insects; 45% (Bent 1968)	Sept.--May (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Myotis austroriparius</u> Southeastern myotis	insects (Lowery 1974b)	Active year-round in warm weather; mating in spring (Lowery 1974b)	
<u>Lasiurus borealis</u> Red bat	insects (Lowery 1974b)	Active year-round in warm weather; young born May-June (Lowery 1974b)	
<u>Lasiurus seminolus</u> Seminole bat	insects (Lowery 1974b)	Active year-round in warm weather; young born in June (Lowery 1974b)	
<u>Dasypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants (Lowery 1974b)	Breeds Jan.-Sept. (Lowery 1974b)	
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat	aquatic vegetation (Lowery 1974b)	Active year-round; breeding peaks Nov. and Mar. (Lowery 1974b)	
<u>Myocastor coypus</u> Nutria	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	
<u>Procyon lotor</u> Northern raccoon	crayfish, rodents, birds, fish, crabs, frogs (Lowery 1974b)	Active year-round births in early spring (Lowery 1974b)	
<u>Mustela vison</u> North American mink	crabs, crayfish, fish, frogs, turtles, snakes (Lowery 1974b)	Breeds in late fall (Lowery 1974b)	
<u>Lutra canadensis</u> Nearctic river otter	nutria, swamp rabbit, cottontail, rice rat, cotton rat, muskrat (Riley and McBride 1972)	Breeds Jan.-Feb.; Births Mar.- Apr. (Riley and McBride 1972)	Endangered
<u>Canis rufus</u> Red wolf	plant material (Lowery 1974b)	Breeds: Sept.-Mar. (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer			

Appendix 6.3(14). Species of epiphytic algae found in Salt Marsh Habitat.

Macrophytes (Kapuraun 1974) - Chenier Plain

Bostrychia radicans  
Polysiphonia subtilissima  
Enteromorpha sp.  
Ectocarpus sp.  
Chaetomorpha  
Blidingia marginata  
Chaetomorpha linum  
Enteromorpha flexuosa  
Rhizoclonium kochianum

Cyanophyta (Stowe 1972) - S.E. Louisiana

Oscillatoria  
Lyngbya  
Spirulina

Diatoms (Stowe 1972) - S.E. Louisiana

<u>Anchnanthes brevipes</u>	<u>D. interrupta</u>
<u>Amphiprora</u> sp.	<u>D. smithii</u>
<u>Amphora</u> sp.	<u>Grammatophora marina</u>
<u>Amphora cymbifera</u>	<u>Gyrosigma</u> sp.
<u>Amphora granulata</u>	<u>Mastogloia</u> sp.
<u>Amphora ventricosa</u>	<u>Melosira</u> sp.
<u>Bacillaria paradoxa</u>	<u>Navicula</u> sp.
<u>Caloneis liber</u>	<u>N. calica</u>
<u>Cocconeis</u> sp.	<u>N. rostellata</u>
<u>C. placentula</u>	<u>N. trompii</u>
<u>C. scutellum</u>	<u>Nitzschia</u> sp.
<u>Coscinodiscus</u> sp.	<u>N. acuminate</u>
<u>Cyclotella</u> sp.	<u>N. constricta</u>
<u>Cylindrotheca closterium</u>	<u>N. grossestriata</u>
<u>C. fusiforma</u>	<u>Opephora schwartzii</u>
<u>Denticula</u> sp.	<u>Pleurosigma</u> sp.
<u>Diploneis</u> sp.	<u>Rhopalodia gibberula</u>
	<u>Surirella fastuosa</u>
	<u>Synedra</u> sp.

continued

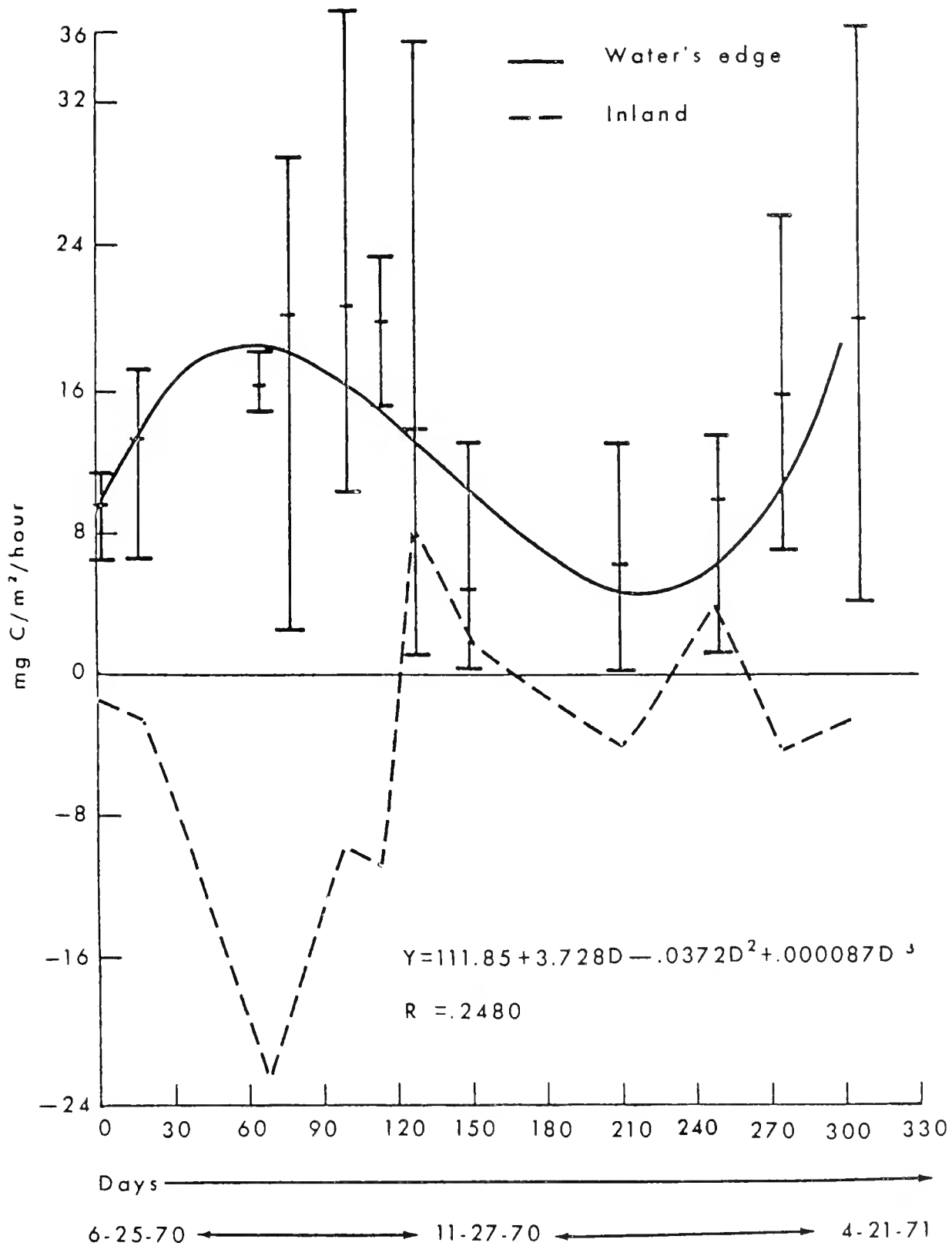
Appendix 6.3(14). Concluded

Species of benthic algae present (Day et al. 1973) - S.E. Louisiana

<u>Enteromorpha flexuosa</u>	<u>Cladophora gracilis</u>
<u>Ectocarpus</u> sp.	<u>Oscillatoria</u> sp.
<u>Gracilaria follifera</u>	<u>Amphora</u> sp.
<u>Ulvella</u> sp.	<u>Denticula</u> sp.
<u>Ulothrix</u> sp.	<u>Diploneis</u> sp.
<u>Cladophora repens</u>	<u>Diploneis interrupta</u>
<u>Rhizoclonium</u> sp.	<u>Gyrosigma</u> sp.
<u>Ulva lactuca</u>	<u>Navicula directa</u>
<u>Vaucheria</u>	<u>Nitzschia</u> sp.
<u>Oscillatoria princeps</u>	<u>Opephora</u> sp.
<u>Lyngbya</u> sp.	<u>Paralia</u> sp.
<u>Spirulina</u> sp.	<u>Amphiprora</u> sp.
<u>Chroocroccus</u> sp.	<u>Caloneis</u> sp.
<u>Merismopedia</u> sp.	<u>Mastogloia</u> sp.
<u>Anacystis</u> sp.	<u>Pleurosigma</u> sp.
<u>Enteromorpha intestinalis</u>	<u>Surirella</u> sp.
<u>Bostrychia rivularis</u>	<u>Cylindrotheca closterium</u>
<u>Polysiphonia havanensis</u>	

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Appendix 6.3(15). Net epiphytic production on stems of Spartina collected at the water's edge and inland 1.5 m, with the averages and extremes for the net water's edge production and a fitted curve for water's edge production superimposed (Stowe 1972)



INVERTEBRATE MEIOBENTHOS (Day et al. 1973)

Nematodes: Diplolaimelloides bruciei

Harpacticord copepods

Amphipods: Corophium sp., Ampilesca sp.

Polychaetes: Neanthes sp.

Oligochaetes

Ostracods

Taraidaceans

Mites

Small snails

Other annelids

Insect larvae

MICROBENTHOS - FORAMINIFERA (Cruz-Orozco 1970 and Warren 1960)

Ammoastuta sp. (agglutinated form)

Arenoparella sp. (agglutinated form)

Trochammina sp. (agglutinated form)

Ammobaculites sp. (agglutinated form)

Miliammina sp. (siliceous-type)

Ammotium sp. (agglutinated form)

Ammonia sp. (calcareous-type)

Criboelphidium sp.

Eponidella sp.

continued

MACROBENTHOS (Day et al. 1973)

Polychaetes

Neanthes succinea

Gastropods

Littorina irrorata (marsh periwinkle)

Neritina reclinata (smooth periwinkle)

Melampus bidentata (snail)

Pelecypods

Modiolus demissus (ribbed mussel)

Decapods

Uca pugnax (fiddler crab)

Sesarma reticulatum (square-backed crab)

Callinectes sapidus (blue crab)

Panopeus herbstii (mud crab)

Rithropanopeus harrissi

Menippe mercenaria

Clibanarius sp. (hermit crab)

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# Appendix 6.3(17). Representative vertebrate species of the Salt Marsh Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>REPTILES</u>			
<u>Alligator mississippiensis</u> American alligator	crayfish, crabs, birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)		Endangered - Tex. Threatened - La.
<u>Chrysemys concinna</u> Mobile cooter			
<u>Malaclemys terrapin</u> Diamondback terrapin	crustaceans, mollusks, roots of marsh plants, carrion (Carr 1952)		
<u>Nerodia fasciata clarki</u> Gulf salt marsh snake	fish, fiddler crabs (Wright and Wright 1957)		
<u>BIRDS</u>			
<u>Podiceps nigricollis</u> Eared grebe	insects, shrimp, some water plants, feathers (Bent 1919)	Oct.-May (Lowery 1974a)	
<u>Podilymbus podiceps</u> Pied-billed grebe	mostly animal: aquatic worms and insects, snails, small frogs and fish. plants: seeds and soft parts (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Pelecanus erythrorhynchus</u> American white pelican	fish (Bent 1922)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974a)	Year-round (Lowery 1974a)	Invaded La. in 1955

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Dichromanassa rufescens</u> Reddish egret		Mar.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1976)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Botaurus lentiginosus</u> American bittern	mollusks, crayfish, insects, small fish, frogs, lizards, small snakes, mice (Bent 1926)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Plegadis falcinellus</u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	
<u>Plegadis chihi</u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Eudocimus albus</u> White ibis	mostly crayfish; also other crustaceans, slugs, snails, small snakes, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Aiaia ajaja</u> Roseate spoonbill	fish, shrimp, insects (Bent 1926)	Year-round (Lowery 1974a)	
<u>Branta canadensis</u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges; some mollusks, crustaceans (Bent 1925)	Oct.-Feb. (Lowery 1974a)	
<u>Anser albifrons</u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	

continued

# Appendix 6.3(17). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Chen caerulescens</u> Snow goose	almost wholly plants: grain, roots and culms of grasses; some insects, mollusks (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Dendrocygna bicolor</u> Fulvous tree duck	mostly seeds of grasses and weeds; also grasses, grain (Bent 1923)	Apr.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Anas platyrhynchos</u> Mallard	90% plant; sedges, grasses, smartweeds, pondweeds, duck- weeds, tubers, mast; 10% animal: insects, crustaceans, mollusks, fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas rubripes</u> Black duck	mast, grain, mollusks, crustaceans (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas tulvigula</u> Mottled duck	40% animal: mollusks, insects, crayfish, small fish 60% plant: mostly grasses (plants and seeds) (Bent 1923)	Year-round (Lowery 1974a)	
<u>Anas strepera</u> Gadwall	principally plants (Bent 1953)	Oct.-May. (Lowery 1974a)	
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas crecca</u> Green-winged teal	10% animal: insects, mollusks, crustaceans 90% plant: sedges, pondweeds and grasses (62%); other (28%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas discors</u> Blue-winged teal	30% animal: worms, mollusks, insects, tadpoles 70% plant: sedges, pondweeds and grasses (43.6%); other (26.4%) (Bent 1923)	Feb.-Apr.; Sept.-Nov. (Lowery 1974a)	
<u>Anas clypeata</u> Northern shoveler	animal: worms, small mollusks, insects, shrimp, small fish, small frogs. plant: buds and young shoots of rushes and other aquatic; grasses (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Anas americana</u> American widgeon			
<u>Aythya collaris</u> Ring-necked duck	19% animal: insects, mollusks; 81% plant: aquatic plants, sedges, grasses, smartweeds (Cottam 1939)	Oct.-Apr. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Aythya affinis</u> Lesser scaup	similar to <u>A. americana</u> (Bent 1943)	Oct.-Apr. (Lowery 1974a)	
<u>Bucephala albeola</u> Bufflehead	79% animal: insects, crustaceans, mollusks, fish; 21% plant; pondweeds, misc. (Cottam 1939)	Nov.-Mar. (Lowery 1974a)	
<u>Oxyura jamaicensis</u> Ruddy duck	72% plant: aquatic plants, grasses, sedges; 28% animal: insects, mollusks, crustaceans (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	
<u>Circus cyaneus</u> Marsh hawk	small mammals, herons, ducks, coots, rails, shorebirds, songbirds	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco peregrinus</u> Peregrine falcon	primarily birds: also mammals, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco sparverius</u> American kestrel	insects, amphibians, reptiles, birds, mammals (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Grus americana</u> Whooping crane			Extinct in Chenier Plain Last seen in La. near White Lake in 1949 (Lowery 1974)
<u>Rallus longirostris</u> Clapper rail	small crabs, snails, small fish, aquatic insects, plants (Bent 1926)	Year-round (Lowery 1974a)	
<u>Rallus limicola</u> Virginia rail	earthworms, crayfish, insects, snails, small fish, some grass seeds (Bent 1926)	Oct.-Apr. (Lowery 1974a)	
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Coturnicops noveboracensis</u> Yellow rail		Oct.-May (Lowery 1974a)	

continued

# Appendix 6.3(17). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Laterallus jamaicensis</u> Black rail		Nov.-Apr. (Lowery 1974a)	
<u>Himantopus mexicanus</u> Black-necked stilt	99% animal: mostly insects; also crayfish, snails tiny fish. 1% plant: seeds of aquatic and marsh plants (Bent 1927)	Mar.-Oct. (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Charadrius semipalmatus</u> Semipalmated plover	worms, small mollusks, crustaceans, insects (Bent 1929)	Mar.-May; Jul.-Nov. (Lowery 1974a)	
<u>Pluvialis squatarola</u> Black-bellied plover	marine worms, small mollusks, crustaceans, insects, some plant material (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Limosa haemastica</u> Hudsonian godwit	worms, mollusks, various insects, crustaceans, other small marine life	Apr.-Jun. (Lowery 1974a)	
<u>Rumenius phaeopus</u> Whimbrel	earthworms, sandworms, insects, mollusks, small crustaceans, some plant material	Apr.-May (Lowery 1974a)	
<u>Tringa melanoleuca</u> Greater yellowlegs	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa flavipes</u> Lesser yellowlegs	mostly insects; also small crustaceans, small fish, worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Catoptrophorus semipalmatus</u> Willet	worms, insects, small crabs, small mollusks, small fish, grasses, tender roots, seeds, rice (Bent 1929)	Year-round (Lowery 1974a)	
<u>Actitis macularia</u> Spotted sandpiper	various insects, some small fish (Bent 1929)	Mar.-Apr. (Lowery 1974a)	
<u>Steganopus tricolor</u> Wilson's phalarope	mosquito larvae, other insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(17). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Capella gallinago</u> Common snipe	mostly earthworms, also other worms, insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Limnodromus scolopaceus</u> Long-billed dowitcher	insect larvae, some plant material (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris pusilla</u> Semipalmated sandpiper	small mollusks, worms, insects, traces of plant material (Bent 1927)	Apr.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug.-May (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Stilt sandpiper	animal (70%): small worms, mollusks, insects plant (30%): seeds (Bent 1927)	Apr.-May (Lowery 1974a)	
<u>Larus atricilla</u> Laughing gull	mostly small fish; also eggs of other seabirds, refuse (Bent 1921)	Year-round (Lowery 1974a)	
<u>Gelochelidon nilotica</u> Gull-billed tern	insects (LBent 1921)	Oct.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sterna forsteri</u> Forster's tern	insects, floating carrion (Bent 1921)	Year-round (Lowery 1974a)	

continued

Appendix 6.3(17). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sterna caspia</u> Caspian tern	almost wholly small fish; also shrimp and other surface-swimming aquatic life (Bent 1921)	Year-round (Lowery 1974a)	
<u>Asio flammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Megasceryle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> True swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	Insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Petrochelidon pyrrhonota</u> Cliff swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Corvus ossifragus</u> Fish crow	carrion, crustaceans, fish, bird eggs, insects; berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Cistothorus palustris</u> Marsh wren	insects; especially Coleoptera and Diptera (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus platensis</u> Sedge wren	insects, spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Anthus spinoletta</u> Water pipit		Nov.-Mar. (Lowery 1974a)	

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Dendroica palmarum</u> Palm warbler	mostly insects, spiders; also seeds, berries (Bent 1953)	Oct.-Apr. (Lowery 1974a)	
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, spiders; a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Dolichonyx oryzivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: weed seeds, grain, fruit; 27% animal: mostly insects and spiders	Year-round (Lowery 1974a)	
<u>Quiscalus mexicanus</u> Great-tailed grackle	worms, insects, crustaceans, small fish, tadpoles, small lizards, eggs and young of birds, fruit, grain (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, spiders, small fish, tadpoles (Bent 1958)	Year-round (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	92% plant: seeds; 8% animal: mostly insects (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Ammodramus caudatus</u> Sharp-tailed sparrow	81% animal: insects, amphipods, spiders, small snails; 19% plant: grasses, seeds (Bent, 1968)	Nov.-Mar. (Lowery 1974a)	
<u>Ammodramus maritima</u> Seaside sparrow	marine worms, crustaceans, insects, spiders, mollusks, weed and grass seeds (Bent 1968)	Year-round (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Dasypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants (Lowery 1974b)	Breeds Jan.-Sept. (Lowery 1974b)	

continued

Appendix 6.3(17). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat	grasses, aquatic plants, animals (O'Neil 1949)	Breeding peaks in Nov. and Mar. (Lowery 1974b)	x=2.4 houses/ 100 acre; 1969- 1971 (Palmiano 1972)
<u>Myocastor coypus</u> Nutria	aquatic plants (Lowery 1974b)		
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	
<u>Lutra canadensis</u> Nearctic river otter	crabs, crayfish, fish, frogs, turtles, snakes (Lowery 1974b)	Breeds in late fall (Lowery 1974b)	

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Bufo woodhousei</u> Woodhouse's toad			
<u>Hyla cinerea</u> Green tree frog			
<u>Rana clamitans</u> Bronze frog			
<u>Rana spinocephala</u> Southern leopard frog			
<u>Gastrophryne carolinensis</u> Eastern narrow-mouthed toad			
<u>REPTILES</u>			
<u>Alligator mississippiensis</u> American alligator	50% blue crabs; also birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)		Endangered - Tex. Threatened - La. .07/acre (Joanen and McNease 1972)
<u>Chelydra serpentina</u> Snapping turtle	fish (35.4%); other vertebrates (1.1%); carrion (19.6%); invertebrates (7.8%); vegetable matter (36.2%) (Carr 1952)		
<u>Kinostemon subrubrum</u> Mississippi mud turtle	insects, small snails (Carr 1952)		
<u>Chrysemys floridana</u> Missouri slider	tadpoles, crayfish, plant material (Carr 1952)		
<u>Deltochelys reticularia</u> Chicken turtle	crustaceans, mollusks, roots of marsh plants, carrion (Carr 1952)		
<u>Malaclemys terrapin</u> Diamondback terrapin	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
<u>Coluber constrictor</u> Racer			

continued

# Appendix 6.3(18). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Lampropeltis getulus</u> Speckled king snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Nerodia cyclopion</u> Green water snake	Gambusia (77.6%); other fish (18.6%); tadpoles (3.5%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia fasciata clarki</u> Gulf salt marsh snake	fish, fiddler crabs (Wright and Wright 1957)		
<u>Nerodia fasciata confluens</u> Broad-banded water snake	fish (86.9%); frogs and toads (6.4%); tadpoles (4.8%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia rhombifera</u> Diamondback water snake	fish (92.7%); frogs and toads (1.0%); tadpoles (6.1%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Regina rigida</u> Glossy crayfish snake	Siren, fish, crayfish (Wright and Wright 1957)		
<u>Storeria dekayi</u> Brown snake	earthworms, snails, insects, small frogs, fish (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals, (Wright and Wright 1957)		
<u>BIRDS</u>			
<u>Podiceps nigricollis</u> Eared grebe	insects, shrimp, some water plants, feathers (Bent 1919)	Oct.-May (Lowery 1974a)	
<u>Podilymbus podiceps</u> Pied-billed grebe	mostly animal: aquatic worms and insects, snails, small frogs and fish. plants: seeds and soft parts (Bent 1919)	Oct.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(18). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974a)	Year-round (Lowery 1974a)	Invaded La. in 1955
<u>Dichromanassa rufescens</u> Reddish egret		Mar.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Ixobrychus exilis</u> Least bittern	slugs, leeches, insects, small fish, tadpoles, small frogs, lizards, small mammals	Apr.-Sept. (Lowery 1974a)	
<u>Botaurus lentiginosus</u> American bittern	mollusks, crayfish, insects, small fish, frogs, lizards, small snakes, mice (Bent 1926)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Mycteria americana</u> Wood stork	fish, aquatic reptiles, insects (Bent 1926)	Jun.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

# Appendix 6.3(18). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Plegadis falcinellus</u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	
<u>Plegadis chinii</u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Eudocimus albus</u> White ibis	mostly crayfish; also other crustaceans, slugs, snails, small snakes, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Ajaia ajaia</u> Roseate spoonbill	fish, shrimp, insects (Bent 1926)	Year-round (Lowery 1974a)	
<u>Branta canadensis</u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges; some mollusks, crustaceans (Bent 1925)	Oct.-Feb. (Lowery 1974a)	
<u>Anser albifrons</u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	
<u>Chen caerulescens</u> Snow goose	almost wholly plants: grain, roots and culms of grasses; some insects, mollusks (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Dendrocygna bicolor</u> Fulvous tree duck	mostly seeds of grasses and weeds; also grasses, grain (Bent 1923)	Apr.-Sept. (Lowery 1974a)	
<u>Anas platyrhynchos</u> Mallard	90% plant: sedges, grasses, smartweeds, pondweeds, duckweeds, tubers, mast; 10% animal: insects, crustaceans, mollusks, fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas rubripes</u> Black duck	mast, grain, mollusks, crustaceans (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas fulvigula</u> Mottled duck	40% animal: mollusks, insects, crayfish, small fish 60% plant: mostly grasses (Plants and seeds) (Bent 1923)	Year-round (Lowery 1974a)	
<u>Anas strepera</u> Gadwall	principally plants (Bent 1953)	Oct.-Mar. (Lowery 1974a)	
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Anas crecca</u> Green-winged teal	10% animal: insects, mollusks, crustaceans 90% plant: sedges, pondweeds and grasses (62%); other (28%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas discors</u> Blue-winged teal	30% animal: worms, mollusks, insects, tadpoles 70% plant: sedges, pondweeds and grasses (43.6%); other (26.4%) (Bent 1923)	Feb.-Apr.; Sept.-Nov. (Lowery 1974a)	
<u>Anas clypeata</u> Northern shoveler	animal: worms, small mollusks, insects, shrimp, small fish, small frogs. plant: buds and young shoots of rushes and other aquatic; grasses (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Anas americana</u> American widgeon	90% plant, 10% animal (from Sept.-Apr.) (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya collaris</u> Ring-necked duck	19% animal: insects, mollusks; 81% plant: aquatic plants, sedges, grasses, smartweeds (Cottam 1939)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya affinis</u> Lesser scaup	similar to <u>A. marila</u> (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Bucephala albeola</u> Bufflehead	79% animal: insects, crustaceans, mollusks, fish; 21% plant: pondweeds, misc. (Cottam 1939)	Nov.-Mar. (Lowery 1974a)	
<u>Oxyura jamaicensis</u> Ruddy duck	72% plant: aquatic plants, grasses, sedges; 28% animal: insects, mollusks, crustaceans (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	
<u>Circus cyaneus</u> Marsh hawk	small mammals, herons, ducks, coots, rails, shorebirds, songbirds	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco peregrinus</u> Peregrine falcon	primarily birds; also mammals, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Rallus elegans</u> King rail	grass seeds, insects, slugs, leeches, tadpoles, crayfish (Bent 1926)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(18) Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Rallus longirostris</u> Clapper rail	small crabs, snails, small fish, aquatic insects, plants (Bent 1926)	Year-round (Lowery 1974a)	
<u>Rallus limicola</u> Virginia rail	earthworms, crayfish, insects, snails, small fish, some grass seeds (Bent 1926)	Oct.-Apr. (Lowery 1974a)	
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Coturnicops noveboracensis</u> Yellow rail		Oct.-May (Lowery 1974a)	
<u>Laterallus jamaicensis</u> Black rail		Nov.-Apr. (Lowery 1974a)	
<u>Gallinula chloropus</u> Common gallinule	seeds, roots, soft parts of aquatic plants, snails, insects, worms (Bent 1926)	Apr.-Nov. (Lowery 1974a)	
<u>Pulica americana</u> American coot	leaves, fronds, seeds and roots of aquatic plants; wild celery, algae; worms, snails, insects, small fish, tadpoles (Bent 1926)	Sept.-Apr. (Lowery 1974a)	
<u>Himantopus mexicanus</u> Black-necked stilt	99% animal: mostly insects; also crayfish, snails, tiny fish. 1% plant: seeds of aquatic and marsh plants (Bent 1927)	Mar.-Oct. (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Pluvialis squatarola</u> Black-bellied plover	marine worms, small mollusks, crustaceans, insects, some plant material (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Limosa haemastica</u> Hudsonian godwit	worms, mollusks, various insects, crustaceans, other small marine life	Apr.-Jun. (Lowery 1974a)	
<u>Numenius phaeopus</u> Whimbrel	earthworms, sandworms, insects, mollusks, small crustaceans, some plant material	Apr.-May (Lowery 1974a)	
<u>Tringa melanoleuca</u> Greater yellowlegs	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	

continued

# Appendix 6.3(18) Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Tringa flavipes</u> Lesser yellowlegs	mostly insects; also small crustaceans, small fish, worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Catoptrophorus semipalmatus</u> Willet	worms, insects, small crabs, small mollusks, small fish, grasses, tender roots, seeds, rice (Bent 1929)	Year-round (Lowery 1974a)	
<u>Actitis macularia</u> Spotted sandpiper	various insects, some small fish (Bent 1929)	Mar.-Apr. (Lowery 1974a)	
<u>Steganopus tricolor</u> Wilson's phalarope	mosquito larvae, other insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Capella gallinago</u> Common snipe	worms, insects, seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Limnodromus scolopaceus</u> Long-billed dowitcher	insect larvae, some plant material (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris pusilla</u> Semipalmated sandpiper	small mollusks, worms, insects, traces of plant material (Bent 1927)	Apr.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug.-May (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(18) Continued.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Stilt sandpiper	animal (70%): small worms, mollusks, insects plant (30%): seeds (Bent 1927)	Apr.-May (Lowery 1974a)	
<u>Larus atricilla</u> Laughing gull	mostly small fish; also eggs of other seabirds, refuse	Year-round (Lowery 1974a)	
<u>Gelochelidon allotica</u> Gull-billed tern	insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sterna forsteri</u> Forster's tern	insects, floating carrion (Bent 1921)	Year-round (Lowery 1974a)	
<u>Sterna caspia</u> Caspian tern	almost wholly small fish; also shrimp and other surface-swimming aquatic life (Bent 1921)	Year-round (Lowery 1974a)	
<u>Asio flammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Megascyle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Petrochelidon pyrrhonota</u> Cliff swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Corvus ossifragus</u> Fish crow	carriion, crustaceans, fish, bird eggs, insects; berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Cistothorus palustris</u> Marsh wren	insects; especially Coleoptera and Diptera (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus platensis</u> Sedge wren	insects, spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Anthus spinoletta</u> Water pipit		Nov.-Mar. (Lowery 1974a)	
<u>Dolichonyx oryzivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: weed seeds, grain, fruit; 27% animal: mostly insects and spiders	Year-round (Lowery 1974a)	
<u>Quiscalus mexicanus</u> Great-tailed grackle	worms, insects, crustaceans, small fish, tadpoles, small lizards, eggs and young of birds, fruit, grain (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, spiders, small fish, tadpoles (Bent 1958)	Year-round (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	92% plant: seeds; 8% animal: mostly insects (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Dasypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	

continued

# Appendix 6.3(18) Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants (Lowery 1974b)	Breeds Jan.-Sept. (Lowery 1974b)	
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat	50% blue crabs; also birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)	Breeding peaks in Nov. and Mar.	x=13.1 houses/ 100 acre; 1969- 1971 (Palmisano 1972b)
<u>Canis rufus</u> Red wolf	nutria, swamp rabbit, cottontail, marsh rice rat, cotton rat, muskrat, some newborn calves (Kiley and McBride 1972)	Active year-round (Lowery 1974b)	Endangered
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	
<u>Mustela vison</u> North American mink	crayfish, rodents, birds, fish, crabs, frogs (Lowery 1974b)	Active year-round births in early spring (Lowery 1974b)	
<u>Lutra canadensis</u> Nearctic river otter	frogs, turtles, snakes, fish, crayfish, crabs (Lowery 1974b)	Mates in late fall (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer	plant material (Lowery 1974b)	Breeds: Sept.-Mar. (Lowery 1974b)	

# Appendix 6.3(19). Representative vertebrate species of the Intermediate Marsh Habitat in the Chenier Plain.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>AMPHIBIANS</u>			
<u>Eurycea quadridigitata</u>			
Dwart salamander			
<u>Bufo woodhousei</u>			
Woodhouse's toad			
<u>Hyla cinerea</u>			
Green treefrog			
<u>Rana clamitans</u>			
Bronze frog			
<u>Rana sponocephala</u>			
Southern leopard frog			
<u>Gastrophryne carolinensis</u>			
Eastern narrow-mouthed toad			
<u>REPTILES</u>			
<u>Alligator mississippiensis</u>			
American alligator	crayfish, crabs, birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)		Endangered - Tex. Threatened - La. 0.1/acre (Joanen and McNease 1972)
<u>Chelydra serpentina</u>			
Snapping turtle	fish (35.4%), other vertebrates (1.1%), carrion (19.6%), invertebrates (7.8%), plant material (36.2%) (Carr 1952)		
<u>Sternotherus odoratus</u>			
Stinkpot	fish (46.3%), mollusks (40.1%), also crayfish, insects, plant material for Michigan (Carr 1952)		
<u>Kinosternon subrubrum</u>			
Mississippi mud turtle	insects, small snails (Carr 1952)		
<u>Chrysemys floridana</u>			
Missouri slider			
<u>Pseudochelys reticularia</u>			
Chicken turtle	tadpoles, crayfish, plant material (Carr 1952)		

continued

# Appendix 6.3(19). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Coluber constrictor</u> Racer	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
<u>Lampropeltis getulus</u> Speckled king snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Nerodia cyclopion</u> Green water snake	Cambusia (77.6%); other fish (18.6%); tadpoles (3.5%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia fasciata confluens</u> Broad-banded water snake	fish (86.9%); frogs and toads (6.4%); tadpoles (4.8%)	Mar.-Sept. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia rhombifera</u> Diamondback water snake	fish (92.7%); frogs and toads (1.0%); tadpoles (6.1%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	
<u>Regina grahami</u> Graham's crayfish snake	crayfish (100%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard unpublished manuscript)	
<u>Regina rigida</u> Glossy crayfish snake	<u>Siren</u> , fish, crayfish (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Thamnophis sirtalis</u> Garter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		
<b>BIRDS</b>			
<u>Podiceps nigricollis</u> Eared grebe	insects, shrimp, some water plants, feathers (Bent 1919)	Oct.-May (Lowery 1974a)	
<u>Podilymbus podiceps</u> Pied-billed grebe	mostly animal: aquatic worms and insects, snails, small frogs and fish. plants: seeds and soft parts (Bent 1919)	Oct.-Apr. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Abundance or Activity</u>	<u>Remarks</u>
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974a)	Year-round (Lowery 1974a)	Invaded La. in 1955
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Ixobrychus exilis</u> Least bittern	slugs, leeches, insects, small fish, tadpoles, small frogs, lizards, small mammals	Apr.-Sept. (Lowery 1974a)	
<u>Botaurus lentiginosus</u> American bittern	mollusks, crayfish, insects, small fish, frogs, lizards, small snakes, mice (Bent 1926)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Mycteria americana</u> Wood stork	fish, aquatic reptiles, insects (Bent 1926)	Jun.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Plegadis falcinellus</u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	
<u>Plegadis chihi</u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

# Appendix 6.3(19). Continued.

<u>Species</u>	<u>Food</u>	<u>Abundance or Activity</u>	<u>Remarks</u>
<u>Anas discors</u> Blue-winged teal	30% animal: worms, mollusks, insects, tadpoles 70% plant: sedges, pondweeds and grasses (43.6%); other (26.4%) (Bent 1923)	Feb.-Apr.; Sept.-Nov. (Lowery 1974a)	
<u>Anas clypeata</u> Northern shoveler	animal: worms, small mollusks, insects, shrimp, small fish, small frogs. plant: buds and young shoots of rushes and other aquatics; grasses (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Anas americana</u> American widgeon	90% plant, 10% animal (from Sept.-Apr.) (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya collaris</u> Ring-necked duck	19% animal: insects, mollusks; 81% plant: aquatic plants, sedges, grasses, smartweeds (Cottam 1939)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya affinis</u> Lesser scaup	similar to <u>A. marila</u> (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Bucephala albeola</u> Bufflehead	79% animal: insects, crustaceans, mollusks, fish; 21% plant: pondweeds, misc. (Cottam 1939)	Nov.-Mar. (Lowery 1974a)	
<u>Oxyura jamaicensis</u> Ruddy duck	72% plant: aquatic plants, grasses, sedges; 28% animal: insects, mollusks, crustaceans (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	
<u>Lophodytes cucullatus</u> Hooded merganser	mostly insects; also small fish, frogs, mollusks, crayfish, roots of aquatic plants, seeds, grain (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Circus cyaneus</u> Marsh hawk	small mammals, herons, ducks, coots, rails, shorebirds, songbirds	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco peregrinus</u> Peregrine falcon	primarily birds; also mammals, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds, also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco sparverius</u> American kestrel	insects, amphibians, reptiles, birds, mammals (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Eudocimus albus</u> White ibis	mostly crayfish, also other crustaceans, slugs, snails, small snakes, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Ajaja ajaja</u> Roseate spoonbill	fish, shrimp, insects (Bent 1926)	Year-round (Lowery 1974a)	
<u>Branta canadensis</u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges; some mollusks, crustaceans (Bent 1925)	Oct.-Feb. (Lowery 1974a)	
<u>Anser albifrons</u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	
<u>Chen caerulescens</u> Snow goose	almost wholly plants: grain, roots and culms of grasses; some insects, mollusks (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Dendrocygna bicolor</u> Fulvous whistling-duck	mostly seeds of grasses and weeds; also grasses, grain (Bent 1923)	Apr.-Sept. (Lowery 1974a)	
<u>Anas platyrhynchos</u> Mallard	90% plant: sedges, grasses, smartweeds, pondweeds, duckweeds, tubers, mast; 10% animal: insects, crustaceans, mollusks, fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas rubripes</u> Black duck	mast, grain, mo-lusks, crustaceans (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas fulvigula</u> Mottled duck	40% animal: mollusks, insects, crayfish, small fish 60% plant: mostly grasses (plants and seeds) (Bent 1923)	Year-round (Lowery 1974a)	
<u>Anas strepera</u> Gadwall	principally plants (Bent 1953)	Oct.-Mar. (Lowery 1974a)	
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects; 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas crecca</u> Green-winged teal	10% animal: insects, mollusks, crustaceans; 90% plant: sedges, pondweeds and grasses (62%); other (28%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	

continued

Appendix 6.3(19). Continued.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>Rallus elegans</u> King rail	grass seeds, insects, slugs, leeches, tadpoles, crayfish (Bent 1926)	Year-round (Lowery 1974a)	
<u>Rallus limicola</u> Virginia rail	earthworms, crayfish, insects, snails, small fish, some grass seeds (Bent 1926)	Oct.-Apr. (Lowery 1974a)	
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Coturnicops noveboracensis</u> Yellow rail		Oct.-May (Lowery 1974a)	
<u>Laterallus jamalcensis</u> Black rail		Nov.-Apr. (Lowery 1974a)	
<u>Gallinula chloropus</u> Common gallinule	seeds, roots, soft parts of aquatic plants, snails, insects, worms (Bent 1926)	Apr.-Nov. (Lowery 1974a)	
<u>Fulica americana</u> American coot	leaves, fronds, seeds and roots of aquatic plants; wild celery, algae; worms, snails, insects, small fish, tadpoles (Bent 1926)	Sept.-Apr. (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Pluvialis squatarola</u> Black-bellied plover	marine worms, small mollusks, crustaceans, insects, some plant material (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Limosa haemastica</u> Hudsonian godwit	worms, mollusks, various insects, crustaceans, other small marine life.	Apr.-Jun. (Lowery 1974a)	
<u>Numenius phaeopus</u> Whimbrel	earthworms, sandworms, insects, mollusks, small crustaceans, some plant material	Apr.-May (Lowery 1974a)	
<u>Tringa melanoleuca</u> Greater yellowlegs	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa flavipes</u> Lesser yellowlegs	mostly insects; also small crustaceans, small fish, worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Catoptrophus semipalmatus</u> Willet	worms, insects, small crabs, small mollusks, small fish, grasses, tender roots, seeds, rice (Bent 1929)	Year-round (Lowery 1974a)	
<u>Actitis macularia</u> Spotted sandpiper	various insects, some small fish (Bent 1929)	Mar.-Apr. (Lowery 1974a)	
<u>Steganopus tricolor</u> Wilson's phalarope	mosquito larvae, other insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Capella gallinago</u> Common snipe	worms, insects, seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Limnodromus scolopaceus</u> Long-billed dowitcher	insect larvae, some plant material (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris pusilla</u> Semipalmated sandpiper	small mollusks, worms, insects, traces of plant material (Bent 1927)	Apr.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug.-May (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; July-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	Insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Silt sandpiper	animal (70%): small worms, mollusks, insects plant (30%): seeds (Bent 1927)	Apr.-May (Lowery 1974a)	

continued

Appendix 6.3(19). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Larus atricilla</u> Laughing gull	mostly small fish; also eggs of other seabirds, refuse (Bent 1921)	Year-round (Lowery 1974a)	
<u>Gelochelidon nilotica</u> Gull-billed tern	insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sterna forsteri</u> Forster's tern	insects, floating carrion (Bent 1921)	Year-round (Lowery 1974a)	
<u>Sterna caspia</u> Caspian tern	almost wholly small fish; also shrimp and other surface-swimming aquatic life (Bent 1921)	Year-round (Lowery 1974a)	
<u>Chlidonias niger</u> Black tern	small fish, insects (Bent 1921)	Apr.-Sept. (Lowery 1974a) (non-breeding)	
<u>Asio flammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Megasceryle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Lridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects, some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Petrochelidon pyrrhonota</u> Cliff swallow		Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Corvus ossifragus</u> Fish crow	carrion, crustaceans, fish, bird eggs, insects; berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Cistothorus platensis</u> Sedge wren	insects, spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Anthus spinoletta</u> Water pipit		Nov.-Mar. (Lowery 1974a)	
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Delichonyx oryzivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: weed seeds, grain, fruit; 27% animal: mostly insects and spiders	Year-round (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, spiders, small fish, tadpoles (Bent 1958)	Year-round (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	92% plant: seeds; 8% animal: insects (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Melospiza georgiana</u> Swamp sparrow	55% insects; 45% weed seeds (Bent 1968)	Sept.-May (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Dasyus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants (Lowery 1974b)	Breeds Jan.-Sept. (Lowery 1974b)	
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	

continued

# Appendix 6.3(19). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Ondatra zibethicus</u> Common muskrat	crayfish, crabs, birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)	Breeding peaks in Nov. and Mar. (Lowery 1974b)	x=4.5 houses/ 100 acre; 1969- 1971 (Palmisano 1972b)
<u>Myocastor coypus</u> Nutria	aquatic plants (Lowery 1974b)		
<u>Canis rufus</u> Red wolf	nutria, swamp rabbit, cottontail, marsh rice rat, cotton rat, muskrat, some newborn calves (Riley and McBride 1972)	Active year-round (Lowery 1974b)	Endangered
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	
<u>Mustela vison</u> North American mink	crayfish, rodents, birds, fish, crabs, frogs (Lowery 1974b)	Active year-round births in early spring (Lowery 1974b)	
<u>Lutra canadensis</u> Nearctic river otter	frogs, turtles, snakes, fish, crayfish, crabs	Mates in late fall (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer	plant material (Lowery 1974b)	Breeds: Sept.-Mar. (Lowery 1974b)	

Appendix 6.3(20). Checklist of aquatic organisms collected in an  
Intermediate Marsh Habitat in Cameron Parish, Louisiana,  
14 May 1974 to 26 October 1975 (Farlow 1976).

PHYLUM MOLLUSCA - mollusks

Class Gastropoda - univalve mollusks

Order Basommatophora - fresh-water snails

Family Physidae - physid snails

Physa sp. (adults and young)

PHYLUM ARTHROPODA - jointed footed animals

Class Arachnida - arachnids

Order Acari - mites and ticks

unidentified freshwater mites

Class Crustacea - crustaceans

Subclass Brachiopoda - Phyllopods

Order Cladocera - water fleas

unidentified cladoceran

Subclass Copepoda - copepods

unidentified copepods

Subclass Malacostraca

Order Amphipoda - sand hoppers

Family Talitridae - scuds

Hyalella azteca (Saussure) (adults and young)

Order Decapoda - shrimp and crayfish

Family Astacidae - crawfish

Cambarellus sp. (adults and young)

Procambarus clarki (Girard) (adults and young)

Family Palaemonidae - freshwater prawns

Palaemonetes paludosus (Gibbs) (adults and young)

Order Isopoda - aquatic sowbugs

Family Asellidae

Asellus sp. (adults)

Family Bopyridae

Probopyrus sp. (adults)

Order Mysidacea - opossum shrimp

Family Mysidae

Taphromysis louisianae (Banner) (adults and young)

Subclass Ostracoda - seed shrimp

Order Podocopa

unidentified podocopa

continued

Appendix 6.3(20). Continued

Class Insecta - insects

Order Collembola - spring tails

Family Isotomidae

Isotomurus palustris (Muller)

Order Ephemeroptera - may flies

Family Baetidae

Callibaetis sp. (nymphs)

Family Caenidae

Caenis sp. (nymphs)

Order Odonata - dragon and damselflies

Family Aeschnidae - darters

Anax sp. (nymphs)

Family Libellulidae - common skimmers

Belonia sp. (nymphs)

Libellula sp. (nymphs)

Pachydiplax sp. (nymphs)

Family Coenagrionidae - damselflies

Enallagma sp. (nymphs)

Ischnura sp. (nymphs)

Order Hemiptera

Family Corixidae - water boatman

Trichocorixa louisianae Jaczewski (adults and nymphs)

Family Notonectidae - backswimmers

Buenoa omani Truxal (adults)

Buenoa scimitra Bare (adults)

Buenoa spp. (nymphs)

Notonecta undulata Say (adults)

Notonecta sp. (nymphs)

Family Naucoridae - creeping water bugs

Pelocoris femoratus (Palisot de Beauvois) (adults and nymphs)

Family Belostomidae - giant water bugs

Belostoma lutarium (Stal) (adults)

Belostoma testaceum (Leidy) (adults)

Belostoma spp. (nymphs)

Family Nepidae - water scorpions

Ranatra australis Hungerford (adults and nymphs)

Family Veliidae - ripple bugs

Microvelia pulchella Westwood (adults)

continued

Appendix 6.3(20). Continued

- Family Mesoveliidae - water treaders  
    Mesovelia mulsanti bisignata Jaczewski (adults and nymphs)
- Family Hebridae - velvet water bugs  
    Hebrus consolidus Uhler (adults)
- Family Saldidae - shore bugs  
    Micracanthia husseyi Drake and Chapman (adults)
- Order Coleoptera - beetles
- Family Dytiscidae - predaceous diving beetles  
        Acilius sp. (larvae)  
        Liodessus affinis (Say) (adults)  
        Uvaris lacustris (Say) (adults)  
        Neobidessus pullus (LeConte) (adults)  
        Bidessine (larvae)  
        Celina angustata Aube (adults)  
        Copelatus caelatipennis Aube (adults)  
        Cybister fimbriolatus (Say) (adults)  
        Cybister sp. (larvae)  
        Hygrotus acaroides (LeConte) (adults)  
        Hygrotus nubilus (LeConte) (adults)  
        Hygrotus sp. (larvae)  
        Hydroporous sp. (adults and larvae)  
        Hydrovatus cuspidatus Kunze (adults)  
        Hydrovatus sp. (larvae)  
        Laccophilus proximus Say (adults)  
        Laccophilus sp. (larvae)  
        Thermonectus basillaris Harris (adults)  
        Thermonectus ornatcollus Aube (adults)  
        Thermonectus spp. (larvae)
- Family Noteridae - burrowing water beetles  
        Colpius inflatus LeConte (adults)  
        Hydrocanthus sp. (adults)  
        Pronoterus semipunctatus (LeConte) (adults)  
        Suphisellus sp. (adults)  
        Noterid larvae
- Family Hydrophilidae - water scavenger beetles  
        Anacaena sp. (larvae)  
        Berosus exiguus (Say) (adults)  
        Berosus infuscatus LeConte (adults)

continued

Appendix 6.3(20). Continued

Family Hydrophilidae - Continued

Berosus spp. (larvae)  
Cercyon spp. #1 & #2 (adults and larvae)  
Enochrus blatchleyi (Fall) (adults)  
Enochrus hamiltoni (Ham) (adults)  
Enochrus ochroceus (Melsheimer) (adults)  
Enochrus spp. (larvae)  
Helophorus sp. (adults)  
Hydrochus sp. (adults)  
Tropisternus blatchleyi D'Orchymont  
Tropisternus collaris striolatus (LeConte)  
Tropisternus lateralis (Fabricius)  
Tropisternus spp. (larvae)

Family Hydraenidae - moss beetles

Ochthebius sp. (adults)

Family Curculionidae - weevils

Lixellus sp. #1 (adults) - small  
Lixellus schwarzi LeConte (adults)  
Lissorhoptrus spp. (adults and larvae)  
Onychylis nigrirostris (Boheman) (adults)  
Curculionid larvae

Order Diptera - flies

Family Tipulidae - crane flies (larvae)

Family Pshchodidae - mothflies

Psychoda sp. (larvae)

Family Culcidae - mosquitoes

Anopheles sp. (larvae)

Culex salinarius Coquillett (larvae)

Family Heleidae - biting midges (larvae)

Family Chironomidae - midges (larvae)

Family Stratiomyidae - soldier flies

Eulalia sp. (larvae)

Family Tabanidae - horse and deer flies (larvae)

Family Dolichopodidae - long-legged flies (larvae)

Family Syrphidae - flower flies (larvae)

Family Ephydriidae - dance flies

Brachydeutera sp. (larvae)

Notophila sp. (larvae)

Parydra sp. (larvae)

Family Muscidae - muscid flies (larvae)

continued

Appendix 6.3(20). Concluded

PHYLUM CHORDATA

Class Osteichthyes - bony fishes

Order Semionotiformes - gars and pikes

Family Lepisosteidae - gars

Lepisosteus oculatus (Winchell) (fry)

Order Cypriniformes - minnows

Family Atherinidae - silver sides

Menidia audens Hay - mississippi silverside (fry)

Family Cyprinidae - minnows

Cyprinus carpio Linnaeus - carp (fry)

Family Cyprinodontidae - killifish

Cyprinodon variegatus Lacepede - sheephead minnow (fry)

Jordanella floridae Goode and Bean-flagfish

Family Poeciliidae - topminnows

Gambusia affinis (Waird and Girard) - mosquitofish  
(adults and fry)

Heterandria formosa Agassiz - least killifish (adults  
and fry)

Class Amphibia - amphibians

Order Diplasiocela - frogs and toads

Family Ranidae - true frogs

Rana sp. (tadpoles)

Appendix 6.3(21). Representative vertebrate species of the Fresh Marsh Habitat in the  
Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Amphystoma opacum</u>			
Marbled salamander			
<u>Amphystoma texanum</u>			
Small-mouthed salamander			
<u>Notophthalmus viridescens</u>			
Central newt			
<u>Amphiuma tridactylum</u>			
Three-toed amphiuma			
<u>Siren intermedia</u>			
Lesser siren			
<u>Eurycea quadridigitata</u>			
Dwarf salamander			
<u>Bufo valliceps</u>			
Gulf coast toad			
<u>Bufo woodhousei</u>			
Woodhouse's toad			
<u>Acris crepitans</u>			
Northern cricket frog			
<u>Hyla cinerea</u>	Insects (Wright and Wright 1949)		
Green tree frog			
<u>Hyla crucifer</u>			
Spring peeper			
<u>Hyla squirella</u>			
Squirrel tree frog			

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Pseudacris triseriata</u> Upland chorus frog			
<u>Rana catesbeiana</u> Bull frog			
<u>Rana clamitans</u> Bronze frog			
<u>Rana grylio</u> Pig frog			
<u>Rana utricularia</u> Southern leopard frog			
<u>Gastrophryne carolinensis</u> Eastern narrow-mouthed toad			
<u>REPTILES</u>			
<u>Alligator mississippiensis</u> American alligator	61% crayfish; also birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)		Endangered - Tex. Threatened - La. .09/acre (Joanen and McNease 1972)
<u>Chelydra serpentina</u> Snapping turtle	fish (35.4%), other vertebrates (1.1%), carrion (19.6%), invertebrates (7.8%), plant material (36.2%) (Carr 1952)		
<u>Macrolemys temminckii</u> Alligator snapping turtle	fish, frogs, snakes, other turtles, mussels, various aquatic grasses (Carr 1952)		
<u>Kinosternon subrubrum</u> Mississippi mud turtle	insects, small snails (Carr 1952)		
<u>Sternotherus odoratus</u> Stinkpot	fish (46.3%), mollusks (40.1%), also crayfish, insects, plant material for Michigan (Carr 1952)		

continued

# Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Chrysemys floridana</u> Missouri slider			
<u>Chrysemys picta</u> Southern painted turtle	juvenile: 13% plant, 85% animal adult: 88% plant, 10% animal (Carr 1952)		
<u>Chrysemys scripta</u> Red-eared turtle	juvenile: 30% plant, 70% animal (e.g., amphipods) adult: 89% plant, 11% animal (e.g., crayfish) (Carr 1952)		
<u>Delrochelys reticularia</u> Chicken turtle	tadpoles, crayfish, plant material (Carr 1952)		
<u>Graptemys kohni</u> Mississippi map turtle			
<u>Graptemys pseudogeographica</u> Sabine map turtle			
<u>Trionyx spiniferus</u> Spiny softshell	carnivorous		
<u>Coluber constrictor</u> Racer	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
<u>Farancia abacura</u> Mud snake	<u>Amphiuma</u> , <u>Siren</u> , frogs (Wright and Wright 1957)		
<u>Lampropeltis getulus</u> Speckled king snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Nerodia cyclopion</u> Green water snake	<u>Cambusia</u> (77.6%); other fish (18.6%); tadpoles (3.5%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia fasciata confluens</u> Broad-banded water snake	fish (86.9%); frogs and toads (6.4%); tadpoles (4.3%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia rhombifera</u> Diamondback water snake	fish (92.7%); frogs and toads (1.0%); tadpoles (6.1%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	

continued

# Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Regina grahamii</u> Graham's crayfish snake	crayfish (100%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard unpublished manuscript)	
<u>Regina rigida</u> Glossy crayfish snake	<u>Siren</u> , fish, crayfish (Wright and Wright 1957)		
<u>Storeria dekayi</u> Brown snake	earthworms, snails, insects, small frogs, fish (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Thamnophis sirtalis</u> Garter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		
<u>BIRDS</u>			
<u>Podiceps nigricollis</u> Eared grebe	insects, shrimp, some water plants, feathers (Bent 1919)	Oct.-May (Lowery 1974a)	
<u>Podilymbus podiceps</u> Pied-billed grebe	mostly animal: aquatic worms and insects, snails, small frogs and fish. plants: seeds and soft parts (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974a)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricoior</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Ixobrychus exilis</u> Least bittern	slugs, leeches, insects, small fish, tadpoles, small frogs, lizards, small mammals	Apr.-Sept. (Lowery 1984a)	
<u>Botaurus lentiginosus</u> American bittern	mollusks, crayfish, insects, small fish, frogs, lizards, small snakes, mice (Bent 1926)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Mycteria americana</u> Wood stork	fish, aquatic reptiles, insects (Bent 1926)	Jun.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Plegadis falcinellus</u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Plegadis chihi</u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Endocimus albus</u> White ibis	mostly crayfish; also other crustaceans, slugs, snails, small snakes, insects (Bent 1926)	Year-round (Lowery 1974a)	
<u>Alala alaja</u> Roseate spoonbill	fish, shrimp, insects (Bent 1926)	Oct.-Feb. (Lowery 1974a)	introduced at Rockefeller Refuge
<u>Branta canadensis</u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges; some mollusks, crustaceans (Bent 1925)		

continued

# Appendix 6.3(21). continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Anser albifrons</u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	
<u>Chen caerulescens</u> Snow goose	almost wholly plants: grain, roots and culms of grasses; some insects, mollusks (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Dendrocygna bicolor</u> Fulvous tree duck	mostly seeds of grasses and weeds; also grasses, grain (Bent 1923)	Apr.-Sept. (Lowery 1974a)	
<u>Anas platyrhynchos</u> Mallard	90% plant: sedges, grasses, smartweeds, pondweeds, duck- weeds, tubers, mast; 10% animal: insects, crustaceans, mollusks, fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas rubripes</u> Black duck	mast, grain, mollusks, crustaceans (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas fulvigula</u> Mottled duck	40% animal: mollusks, insects, crayfish, small fish 60% plant: mostly grasses (plants and seeds) (Bent 1923)	Year-round (Lowery 1974a)	
<u>Anas strepera</u> Gadwall	principally plants (Bent 1953)	Oct.-Mar. (Lowery 1974a)	
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1926)	Oct.-Mar. (Lowery 1974a)	
<u>Anas crecca</u> Green-winged teal	10% animal: insects, mollusks, crustaceans 90% plant: sedges, pondweeds and grasses (62%); other (28%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas discors</u> Blue-winged teal	30% animal: worms, mollusks, insects, tadpoles 70% plant: sedges, pondweeds and grasses (43.6%); other (26.4%) (Bent 1923)	Feb.-Apr.; Sept.-Nov. (Lowery 1974a)	
<u>Anas clypeata</u> Northern shoveler	animal: worms, small mollusks, insects, shrimp, small fish, small frogs. plant: buds and young shoots of rushes and other aquatic; grasses (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Anas americana</u> American widgeon	90% plant, 10% animal (from Sept.-Apr.) (Bent 1923)	Oct.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Aythya collaris</u> Ring-necked duck	19% animal: insects, mollusks; 81% plant: aquatic plants, sedges, grasses, smartweeds (Cottam 1939)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya affinis</u> Lesser scaup	similar to A. marila (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Bucephala albeola</u> Bufflehead	79% animal: insects, crustaceans, mollusks, fish; 21% plant: pondweeds, misc. (Cottam 1939)	Nov.-Mar. (Lowery 1974a)	
<u>Oxyura jamaicensis</u> Ruddy duck	72% plant: aquatic plants, grasses, sedges; 28% animal: insects, mollusks, crustaceans (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	
<u>Lophodytes cucullatus</u> Hooded merganser	mostly insects; also small fish, frogs, mollusks, crayfish, roots of aquatic plants, seeds, grain (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Circus cyaneus</u> Marsh hawk	small mammals, herons, ducks, coots, rails, shorebirds, songbirds	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco sparverius</u> American kestrel	insects, amphibians, reptiles, birds, mammals (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Rallus elegans</u> King rail	grass seeds, insects, slugs, leeches, tadpoles, crayfish (Bent 1926)	Year-round (Lowery 1974a)	
<u>Rallus limicola</u> Virginia rail	earthworms, crayfish, insects, snails, small fish, some grass seeds (Bent 1926)	Oct.-Apr. (Lowery 1974a)	
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Coturnicops noveboracensis</u> Yellow rail		Oct.-May (Lowery 1974a)	
<u>Laterallus jamaicensis</u> Black rail		Nov.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Porphyrio martinica</u> Purple gallinule	rice, other seeds, worms, mollusks (Bent 1926)	Apr.-Sept. (Lowery 1974a)	
<u>Gallinula chloropus</u> Common gallinule	seeds, roots, soft parts of aquatic plants, snails, insects, worms (Bent 1926)	Apr.-Nov. (Lowery 1974a)	
<u>Fulica americana</u> American coot	leaves, fronds, seeds and roots of aquatic plants; wild celery, algae; worms, snails, insects, small fish, tadpoles (Bent 1926)	Sept.-Apr. (Lowery 1974a)	
<u>Himantopus mexicanus</u> Black-necked stilt	99% animal: mostly insects; also crayfish, snails, tiny fish; 1% plant: seeds of aquatic and marsh plants (Bent 1927)	Mar.-Oct. (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Pluvialis squatarola</u> Black-bellied plover	marine worms, small mollusks, crustaceans, insects, some plant material (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Limosa haemastica</u> Hudsonian godwit	worms, mollusks, various insects, crustaceans, other small marine life	Apr.-Jun. (Lowery 1974a)	
<u>Numenius phaeopus</u> Whimbrel	earthworms, sandworms, insects, mollusks, small crustaceans, some plant material	Apr.-May (Lowery 1974a)	
<u>Tringa melanoleuca</u> Greater yellowlegs	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa flavipes</u> Lesser yellowlegs	mostly insects; also small crustaceans, small fish, worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Actitis macularia</u> Spotted sandpiper	insects, occasionally small fish	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Steganopus tricolor</u> Wilson's phalarope	aquatic insects, and their larvae; amphipods; seeds of aquatic plants (Bent 1927)	Apr.-May; Jul.-Sept. (Lowery 1974a)	

continued

# Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Capella gallinago</u> Common snipe	mostly earthworms, also other worms, insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Limnodromus scolopaceus</u> Long-billed dowitcher	insect larvae, some plant material (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug.-May (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Stilt sandpiper	animal (70%): small worms, mollusks, insects plant (30%): seeds (Bent 1927)	Apr.-May (Lowery 1974a)	
<u>Chidonias niger</u> Black tern	small fish, insects (Bent 1921)	Apr.-Sept. (Lowery 1974a) (non-breeding)	
<u>Asie clammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Megasceryle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	Insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Corvus ossifragus</u> Fish crow	carion, crustaceans, fish, bird eggs, insects; berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Cistothorus palustris</u> Marsh wren	Insects; especial- Coleoptera and Diptera (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus platensis</u> Sedge wren	Insects, spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Anthus spinoletta</u> Water pipit		Nov.-Mar. (Lowery 1974a)	
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Dolichonyx oryzivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: weed seeds, grain, fruit; 27% animal: mostly insects and spiders	Year-round (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	Insects, spiders, small fish, tadpoles (Bent 1958)	Year-round (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	92% plant: seeds; 8% animal: mostly insects (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	

Continued

Appendix 6.3(21). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Melospiza georgiana</u> Swamp sparrow	55% insects; 45% seeds (Bent 1968)	Sept.-May (Lowery 1974)	
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Myotis austroriparius</u> Southeastern myotis	insects (Lowery 1974b)	Active year-round in warm weather; mating in spring (Lowery 1974b)	
<u>Lasiurus borealis</u> Red bat	insects (Lowery 1974b)	Active year-round in warm weather; young born May-June (Lowery 1974b)	
<u>Lasiurus seminolus</u> Seminole bat	insects (Lowery 1974b)	Active year-round in warm weather; young born in June (Lowery 1974b)	
<u>Dasypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants (Lowery 1974b)	Breeds Jan.-Sept. (Lowery 1974b)	
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat	61% crayfish; also crabs, birds, fish, insects, muskrats, aquatic vegetation (Lowery 1974b)	Active year-round; breeding peaks Nov. and Mar. (Lowery 1974b)	x= .7 houses/ 100 acre; 1969- 1971 (Palmisano 1972b)
<u>Myocastor coypus</u> Nutria			
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	
<u>Mustela vison</u> North American mink	crayfish, rodents, birds, fish, crabs, frogs (Lowery 1974b)	Active year-round births in early spring (Lowery 1974b)	

continued

Appendix 6.3(21). Concluded.

<u>Species</u>	<u>Food</u>	<u>Abundance or Activity</u>	<u>Remarks</u>
<u>Lutra canadensis</u> Nearctic river otter	crabs, crayfish, fish, frogs, turtles, snakes (Lowery 1974b)	Breeds in late fall (Lowery 1974b)	
<u>Canis rufus</u> Red wolf	nutria, swamp rabbit, cottontail, rice rat, cotton rat, muskrat (Riley and McBride 1972)	Breeds Jan.-Feb.; Births Mar.-Apr. (Riley and McBride 1972)	Endangered
<u>Odocoileus virginianus</u> White-tailed deer	plant material (Lowery 1974b)	Breeds in Sept.-Mar. (Lowery 1974b)	

Appendix 6.3(22). Representative benthic invertebrates described for the  
Fresh Marsh Habitat in coastal southeastern Louisiana (Thomas 1976).

Phylum: Annelida

- Class: Hirudinea (leeches)
- Family: Hirudidae
  - Macrobdella ditetra (Moore)
- Family: Glossiphoniidae
  - Placobdella sp.

Phylum: Mollusca

- Family: Ancyliidae (limpets)
  - Laevapex sp.
- Family: Bythinidae (snails)
  - Pomatopyrgus sp.
- Family: Lymnaeidae (pond snails)
  - Pseudosuccinea sp.
- Family: Physidae (pouch snails)
  - Physa sp.
- Family: Planorbidae (orb snails)
  - Heliosoma sp.
  - Gyraulus sp.
- Family: Viviparidae (large snails)
  - Viviparus sp.
- Family: Sphaeriidae (fingernail clams)
  - Sphaerium sp.
- Family: Unionidae (clams)
  - Anodonta grandis (Soy)
  - Anodonta imbecillus (Soy)
  - Villosa lienosa

Phylum: Arthropoda

- Class: Crustacea
- Family: Balanidae (barnacles)
  - Balanus sp.
- Order: Isopoda (aquatic sow bugs)
- Family: Asellidae
  - Asellus sp.
- Order: Amphipoda (scuds, sideswinners)
- Family: Amphithoidae
  - Cymadusa compta (Smith)
- Family: Gammaridae
  - Crangonyx gracilis
  - Gammarus fasciatus
- Family: Talitridae
  - Hyalella azteca (Saussure)
- Order: Decapoda
- Family: Cambaridae
  - Cambarellus shufeldtii (Faxon) (small crayfish)
  - Orconectes lancifer (Hagen) (crawfish)
  - Procambarus clarkii (Girard) (swamp crawfish)

Phylum: Bryozoa (moss animalcules)

- Family: Lophopodidae
  - Pectinatella magnifica (Leidy)

Appendix 6.3(23). Shrubs and other plants in the Swamp  
Forest Habitat (Conner 1975).

SHRUBS	COMMON NAME
<u>Cephalanthus occidentalis</u>	Buttonbush
<u>Cornus drummondii</u>	Roughleaf dogwood
<u>Forestiera acuminata</u>	Swamp privet
<u>Itea virginica</u>	Virginia willow
<u>Myrica cerifera</u>	Wax myrtle
<u>Persea palustris</u>	Swampbay
<u>Styrax americana</u>	American snowbell
<u>Styrax grandifolia</u>	Bigleaf snowbell
OTHER PLANTS	
<u>Alternanthera philoxeroides</u>	Alligatorweed
<u>Cabomba caroliniana</u>	Fanwort
<u>Ceratophyllum demersum</u>	Coontail
<u>Colocasia antiquorum</u>	Elephant's ear
<u>Crinum americanum</u>	Swamp lily
<u>Egeria densa</u>	Elodea
<u>Eichornia crassipes</u>	Water-hyacinth
<u>Equisetum sp.</u>	Horsetail
<u>Hydrocotyle umbellata</u>	Water pennywort
<u>H. verticillata</u>	Marsh pennywort
<u>Hymenocallis eulae</u>	Spider lily (summer-blooming)
<u>H. occidentalis</u>	Spider lily
<u>Juncus effusus</u>	Common rush
<u>Lemna minor</u>	Duckweed
<u>Limnobium spongia</u>	Frog's bit
<u>Lobelia cardinalis</u>	Cardinal flower
<u>Mayaca aubletii</u>	Mayaca
<u>Micranthemum umbrosum</u>	Shade mudflower
<u>Myriophyllum brasiliense</u>	Parrot's feather
<u>Osmunda regalis</u>	Royal fern
<u>Panicum hemitomon</u>	Maidencane
<u>Phragmites communis</u>	Roseaucane (common seed)
<u>Pistia stratiotes</u>	Water lettuce
<u>Polygonum punctatum</u>	Smartweed
<u>Polypodium polypodioides</u>	Tree fern
<u>Pontederia cordata</u>	Pickereel weed
<u>Sagittaria falcata</u>	Bulltongue
<u>S. lancifolia</u>	Delta potato
<u>Saururus cernuus</u>	Lizard's tail
<u>Sorghum halepense</u>	Johnson grass
<u>Spiranthes cernua</u>	Nodding ladies tresses
<u>Tillandsia usneoides</u>	Spanish moss

Appendix 6.3(24). Representative vertebrate species of the Swamp Forest Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Ambystoma opacum</u>			
Marbled salamander			
<u>Ambystoma texanum</u>			
Small-mouthed salamander			
<u>Notophthalmus viridescens</u>			
Central newt			
<u>Amphiuma tridactylum</u>			
Three-toed amphiuma			
<u>Siren intermedia</u>			
Lesser siren			
<u>Desmognathus auriculatus</u>			
Southern dusky salamander			
<u>Eurycea quadridigitata</u>			
Dwarf salamander			
<u>Bufo woodhousei</u>			
Woodhouse's toad			
<u>Hyla cinerea</u>	insects (Wright and Wright 1949)		
Green tree frog			
<u>Hyla crucifer</u>			
Spring peeper			
<u>Hyla squirella</u>			
Squirrel tree frog			
<u>Hyla versicolor</u> & <u>H. chrysocelis</u>			
Gray tree frog			

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Pseudacris triseriata</u> Upland chorus frog			
<u>Rana catesbeiana</u> Bullfrog			
<u>Rana clamitans</u> Bronze frog			
<u>Rana grylio</u> Pig frog			
<u>Rana sphenoccephala</u> Southern leopard frog			
<u>Gastrophryne carolinensis</u> Eastern narrow-mouthed toad			
<u>REPTILES</u>			
<u>Alligator mississippiensis</u> American alligator	61% crayfish; also birds, fiddler crabs, fish, insects, muskrats, turtles, shrimp, grasses, snails (Chabreck 1971)		Endangered - Tex. Threatened - La. .07/acre (Joanen and McNease 1972)
<u>Chelydra serpentina</u> Snapping turtle	fish (35.4%), other vertebrates (1.1%), carrion (19.6%), invertebrates (7.8%), plant material (36.2%) (Carr 1952)		
<u>Macrolemys temminckii</u> Alligator snapping turtle	fish, frogs, snakes, other turtles, mussels, various aquatic grasses (Carr 1952)		
<u>Kinosternon subrubrum</u> Mississippi mud turtle	insects, small snails (Carr 1952)		
<u>Sternotherus carinatus</u> Razor-backed musk turtle			
<u>Sternotherus odoratus</u> Stinkpot	fish (46.3%), mollusks (40.1%), also crayfish, insects, plant material for Michigan (Carr 1952)		

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Abundance or Activity</u>	<u>Remarks</u>
<u>Chrysemys floridana</u> Missouri slider			
<u>Chrysemys picta</u> Southern painted turtle	juvenile: 13% plant, 85% animal adult: 89% plant, 10% animal (Carr 1952)		
<u>Chrysemys scripta</u> Red-eared turtle	juvenile: 30% plant, 70% animal (e.g., amphipods) adult: 89% plant, 11% animal (e.g., crayfish) (Carr 1952)		
<u>Delrochelys reticularia</u> Chicken turtle	tadpoles, crayfish, plant material (Carr 1952)		
<u>Terrapene carolina</u> Three-toed box turtle	omnivorous in captivity (Carr 1952)		
<u>Trionyx spiniferus</u> Spiny softshell	carnivorous		
<u>Anolis carolinensis</u> Green anole	insects, spiders (Smith 1946)		
<u>Eumeces fasciatus</u> Five-lined skink	earthworms, spiders, insects, some young lizards and mice (Smith 1946)		
<u>Eumeces lariceps</u> Broad-headed skink	insects (Smith 1946)		
<u>Leiolopisma laterale</u> Ground skink	small insects, spiders, millepedes, pillbugs, sowbugs (Smith 1946)		
<u>Coluber constrictor</u> Racer	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
<u>Elaphe obsoleta</u> Texas rat snake	mice, lizards, birds and their eggs, tree frogs, (Wright and Wright 1957)		
<u>Farancia abacura</u> Mud snake	<u>Amphiuma</u> , <u>Siren</u> , frogs (Wright and Wright 1957)		

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Lampropeltis doliaata</u> Louisiana milk snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Lampropeltis getulus</u> Speckled king snake			
<u>Nerodia cyclopion</u> Green water snake	Gambusia (77.6%); other fish (18.6%); tadpoles (3.5%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia fasciata confluens</u> Broad-banded water snake	fish (80.9%); frogs and toads (6.4%); tadpoles (4.8%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia erythrogaster</u> Yellow-bellied water snake	fish (65.3%); frogs and toads (27.0%); tadpoles (7.5%) (Mushinsky and Hebrard 1976)	Apr.-Aug. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia rhombifera</u> Diamondback water snake	fish (92.7%); frogs and toads (1.0%); tadpoles (6.1%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	
<u>Opheodrys aestivus</u> Rough green snake	insects, spiders, snails, frogs, fish (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Thamnophis sirtalis</u> Garter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Virginia striatula</u> Rough earth snake	earthworms, mollusks, insects, sowbugs, small lizards (Wright and Wright 1957)		
<u>Agkistrodon contortrix</u> Copperhead	frogs, small birds, small rodents (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		
<u>Crotalus horridus</u> Canebrake rattlesnake	toads, mice, insects, small snakes, birds (Wright and Wright 1957)		

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>BIRDS</u>			
<u>Podilymbus podiceps</u> Pied-billed grebe	mostly animal: aquatic worms and insects, snails, small frogs and fish. plants: seeds and soft parts (Bent 1910)	Oct.-Apr. (Lowery 1974a)	
<u>Anhinga anhinga</u> Anhinga	fish, leeches, shrimp, crayfish, insects, salamanders, frogs, young turtles and alligators, snakes (Bent 1922)	Mar.-Oct. (Lowery 1974a)	
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Ixobrychus exilis</u> Least bittern	slugs, leeches, insects, small fish, tadpoles, small frogs, lizards, small mammals	Apr.-Sept. (Lowery 1974a)	
<u>Botaurus lentiginosus</u> American bittern	mollusks, crayfish, insects, small fish, frogs, lizards, small snakes, mice (Bent 1926)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Mycteria americana</u> Wood stork	fish, aquatic reptiles, insects (Bent 1926)	Jun.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Abundance or Activity</u>	<u>Remarks</u>
<u>Plegadis falcinellus</u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	
<u>Plegadis chihi</u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Endocimus albus</u> White ibis	mostly crayfish, also other crustaceans, slugs, snails, small snakes, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Anas platyrhynchos</u> Mallard	90% plant: sedges, grasses, smartweeds, pondweeds, duckweeds, tubers, mast; 10% animal: insects, crustaceans, mollusks, fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
Wood duck	seeds, duckweed; 10% animal: mostly insects (Bent 1923)	Year-round (Lowery 1974a)	
<u>Aythya collaris</u> Ring-necked duck	19% animal: insects, mollusks; 81% plant: aquatic plants, sedges, grasses, smartweeds (Cottam 1939)	Oct.-Apr. (Lowery 1974a)	
<u>Coragyps atratus</u> Black vulture	chiefly carrion, also young herons in rookeries (Bent 1937)	Year-round (Lowery 1974a)	
<u>Cathartes aura</u> Turkey vulture	carrion (Bent 1937)	Year-round (Lowery 1974a)	
<u>Elanoides forficatus</u> Swallow-tailed kite	snails, insects, frogs, snakes (Lowery 1974a)	Mar.-Aug. (Lowery 1974a)	
<u>Ictinia mississippiensis</u> Mississippi kite	mostly insects, some small frogs, lizards, snakes (Lowery 1974a)	Apr.-Oct. (Lowery 1974a)	
<u>Buteo lineatus</u> Red-shouldered hawk	earthworms, snails, amphibians, reptiles, birds, mammals (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Buteo platypterus</u> Broad-winged hawk	earthworms, insects, crayfish, anurans, reptiles, birds, mammals (Bent 1937)	Apr.-Sept. (Lowery 1974a)	
<u>Rallus elegans</u> King rail	grass seeds, insects, slugs, leeches, tadpoles, crayfish (Bent 1926)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Porphyrula martinica</u> Purple gallinule	rice, other seeds, worms, mollusks (Bent 1926)	Apr.-Sept. (Lowery 1974a)	
<u>Gallinula chloropus</u> Common gallinule	seeds, roots, soft parts of aquatic plants, snails, insects, worms (Bent 1926)	Apr.-Nov. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Actitis macularia</u> Spotted sandpiper	insects, occasionally small fish	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Philohela minor</u> American woodcock	earthworms, grubs, slugs, insects and their larvae (Bent 1927)	Oct.-Feb. (Lowery 1974a)	
<u>Coccyzus americanus</u> Yellow-billed cuckoo	mostly caterpillars-also other insects, wild berries, frogs, lizards (Bent 1940)	Apr.-Oct. (Lowery 1974a)	
<u>Coccyzus erythrophthalmus</u> Black-billed cuckoo	similar to above; also small mollusks, fish, aquatic larvae, fruits and berries, bird eggs and young (Bent 1940)	Apr.-May; Aug.-Oct. (Lowery 1974a)	
<u>Tyto alba</u> Barn owl	small mammals, birds, insects, frogs (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Otus asio</u> Common screech owl	worms, arthropods, snails, fish, amphibians, reptiles, birds, mammals (Bent 1937)	Year-round; nesting in Mar.-Apr. (Lowery 1974a)	
<u>Bubo virginianus</u> Great horned owl	mostly mammals; also birds, reptiles, amphibians, fish, insects (Bent 1937)	Year-round; nesting in Dec.-Jan. (Lowery 1974a)	
<u>Strix varia</u> Barred owl	mammals, birds, reptiles, amphibians, fish, crayfish, insects, spiders (Bent 1937)	Year-round; nesting in February (Lowery 1974a)	
<u>Caprimulgus carolinensis</u> Chuck-will's-widow	mostly insects; some small birds (Bent 1940)	Apr.-May; Aug.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Caprimulgus vociferus</u> Whip-poor-will	entirely insects (Bent 1940)	Mar.-Apr. (Lowery 1974a)	
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Colaptes auratus</u> Common flicker	61% animal: ants and other insects 39% plant: fruits and berries (Bent 1949)	Year-round (Lowery 1974a)	
<u>Dryocopus pileatus</u> Pileated woodpecker	73% animal: ants, beetles; 27% plant: wild fruits and berries (Bent 1939)	Year-round (Lowery 1974a)	
<u>Melanerpes carolinus</u> Red-bellied woodpecker	26% animal: ants and other insects, spiders, frogs 74% plant: grains, nuts, fruits, berries (Bent 1939)	Year-round (Lowery 1974a)	
<u>Sphyrapicus varius</u> Yellow-bellied sapsucker	cambium, bast, sap, wild fruits; ants, beetles, wasps, other insects (Bent 1939)	Sept.-Mar. (Lowery 1974a)	
<u>Picoides villosus</u> Hairy woodpecker	78% animal: insects, spiders, millipedes; 22% plant: fruit, berries, grain, cambium, mast (Bent 1939)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Picoides pubescens</u> Downy woodpecker	76% animal: insects 24% plant: mostly wild fruit (Bent 1939)	Year-round (Lowery 1974a)	
<u>Myiarchus crinitus</u> Great crested flycatcher	94% animal: insects, spiders; 6% plant: small wild fruits and berries (Bent 1942)	Apr.-Sept. (Lowery 1974a)	
<u>Empidonax flaviventris</u> Yellow-bellied flycatcher	97% animal: insects, spiders; 3% plant: small fruits, some seeds (Bent 1942)	Aug.-Oct. (Lowery 1974a)	
<u>Empidonax virens</u> Acadian flycatcher	97% animal: insects, spiders, millipedes; 3% plant: fruits and berries (Bent 1942)	Apr.-Oct. (Lowery 1974a)	
<u>Empidonax traillii</u> Willow flycatcher	96% animal: insects, spiders, millipedes; 4% plant: fruits, berries, seeds (Bent 1942)	Aug.-Sept. (Lowery 1974a)	
<u>Empidonax alnorum</u> Alder flycatcher		Aug.-Sept. (Lowery 1974a)	

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Dendroica discolor</u> Prairie warbler	100% insects, spiders (Bent 1953)	Mar.-Aug. (Lowery 1974a)	
<u>Dendroica fusca</u> Blackburnian warbler	mostly insects (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica magnolia</u> Magnolia warbler	almost wholly insects (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Dendroica coronata</u> Myrtle warbler	berries, seeds, insects (winter) (Bent 1953)		
<u>Dendroica striata</u> Blackpoll warbler	almost wholly insects; some seeds and berries (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica castanea</u> Bay-breasted warbler	almost wholly insects; some fruit (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Setophaga ruticilla</u> American redstart	mostly insects (Bent 1953)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Seiurus aurocapillus</u> Oven bird	earthworms, mollusks, myriapods, spiders, insects, seeds, small fruit (Bent 1953)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Seiurus noveboracensis</u> Northern waterthrush	almost wholly animal: small worms, minnows, crustaceans, mollusks, insects; a few seeds (Bent 1953)	Aug.-Oct. (Lowery 1974a)	
<u>Seiurus motacilla</u> Louisiana waterthrush	small mollusks, small fish, insects, some seeds (Bent 1953)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Limothlypis swainsoni</u> Swainson's warbler	insects, spiders (Bent 1953)	Mar.-Sept. (Lowery 1974a)	
<u>Helminthos vermivorus</u> Worm-eating warbler	insects, spiders (Bent 1953)	Apr.-May; Jul.-Aug. (Lowery 1974a)	
<u>Protonotaria citrea</u> Prothonotary warbler	insects, spiders, small mollusks (Bent 1953)	Mar.-Sept. (Lowery 1974a)	

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Toxostoma rufum</u> Brown thrasher	63% animal: worms, snails, crayfish, insects, amphibians, lizards; 37% plant: fruits, berries (Bent 1948)	Year-round (Lowery 1974a)	
<u>Turdus migratorius</u> American robin	40% animal: worms, mollusks, insects 60% plant: berries and fruits (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Hyllocichla ustelina</u> Wood thrush	62% animal: insects, spiders, earthworms 38% plant: berries (Bent 1949)	Mar.-Oct. (Lowery 1974a)	
<u>Catharus guttatus</u> Hermit thrush	wild fruits and berries (winter) (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Catharus ustulata</u> Swainson's thrush	64% animal: insects, spiders, millipedes, snails, sowbugs, worms; 36% plant: fruits, berries, seeds (Bent 1949)	Apr.-May (Lowery 1974a)	
<u>Catharus minimus</u> Gray-cheeked thrush	75% animal: insects, spiders, other animals; 25% plant: fruits and berries (Bent 1949)	Apr.-May (Lowery 1974a)	
<u>Catharus fuscescens</u> Veery	60% animal: insects, spiders, sowbugs, snails; 40% plant: fruits and berries (Bent 1949)	Apr.-May (Lowery 1974a)	
<u>Poliophtila caerulea</u> Blue-gray gnatcatcher	insects, spiders (Bent 1949)	Mar.-Oct. (Lowery 1974a)	
<u>Regulus satrapa</u> Golden-crowned kinglet	almost wholly insects (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Regulus calendula</u> Ruby-crowned kinglet	94% animal: insects, spiders, pseudoscorpions; 6% plant: fruit, berries, weed seeds (Bent 1949)	Oct.-Apr. (Lowery 1974a)	
<u>Bombycilla cedrorum</u> Cedar waxwing	Berries (Lowery 1974)	Nov.-Apr. (Lowery 1974a)	
<u>Vireo griseus</u> White-eyed vireo	90% animal: insects, spiders; 10% plant: berries and fruits (Bent 1950)	Mar.-Oct. (Lowery 1974a)	
<u>Vireo flavifrons</u> Yellow-throated vireo	98% animal: mostly insects, some spiders; 2% plant: wild fruits and berries (Bent 1950)	Mar.-Sept. (Lowery 1974a)	

continued

Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Vireo solitarius</u> Solitary vireo	(January) 24% plant: wild fruits and berries; 76% animal: mostly insects (Bent 1950)	Oct.-Apr. (Lowery 1974a)	
<u>Vireo olivaceus</u> <del>Red</del> -eyed vireo	86% animal: almost wholly insects; 14% plant: wild fruits and berries (Bent 1950)	Apr.-Oct. (Lowery 1974a)	
<u>Vireo philadelphicus</u> Philadelphia vireo	93% animal: mostly insects, some spiders; 7% plant: wild fruits and berries (Bent 1950)	Aug.-Oct. (Lowery 1974a)	
<u>Vireo gilvus</u> Warbling vireo	mostly insects, some plant material (Bent 1950)	Apr.-Aug. (Lowery 1974a)	
<u>Mniotilta varia</u> Black-and-white warbler	almost entirely insects and spiders, trace of plant material (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Vermivora chrysoptera</u> Golden-winged warbler	insects, spiders (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Vermivora pinus</u> Blue-winged warbler	insects, spiders (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Vermivora peregrina</u> Tennessee warbler	insects, spiders, snails, trace of plant material (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Vermivora celata</u> Orange-crowned warbler	berries, fruits, insects (winter) (Bent 1953)	Nov.-Apr. (Lowery 1974a)	
<u>Parula americana</u> Northern parula warbler	insects, spiders (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Dendroica caerulescens</u> Cerulean warbler	insects (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Dendroica dominica</u> Yellow-throated warbler	insects, spiders (Bent 1953)	Mar.-Aug. (Lowery 1974a)	
<u>Dendroica virens</u> Black-throated green warbler	insects, spiders (Bent 1953)	Apr.-May; Sept.-Nov. (Lowery 1974a)	

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Empidonax minimus</u> Least flycatcher	98% animal: insects, spiders; 2% plant: fruits, berries, seeds (Bent 1942)	Sept.-Oct. (Lowery 1974a)	
<u>Contopus virens</u> Eastern wood pewee	94% animal: insects, spiders, millipedes; 1% plant: berries (Bent 1942)	Mar.-Oct. (Lowery 1974a)	
<u>Nuttallornis borealis</u> Olive-sided flycatcher	100% insects (Bent 1942)	Aug.-Sept. (Lowery 1974a)	
<u>Cyanocitta cristata</u> Blue jay	24% animal: insects, spiders, myriapods, small fish, amphibians, birds, mice; 76% plant: grain, berries, mast (Bent 1946)	Year-round (Lowery 1974a)	
<u>Corvus brachyrhynchos</u> Common crow	28% animal: insects, spiders, snails, crustaceans, amphibians, birds, mammals, carrion; 72% plant: grain, beans, fruit, berries (Bent 1946)	Year-round (Lowery 1974a)	
<u>Parus carolinensis</u> Carolina chickadee	72% animal: insects, spiders; 28% plant: seeds, berries (Bent 1946)	Year-round (Lowery 1974a)	
<u>Parus bicolor</u> Tufted titmouse	67% animal: insects, snails; 33% plant: fruit, berries, mast (Bent 1946)	Year-round (Lowery 1974a)	
<u>Certhia familiaris</u> Brown creeper	mostly insects, also spiders, pseudoscorpions (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Troglodytes aedon</u> Northern house wren	98% arthropods; 2% plant material (Bent 1948)	Sept.-Apr. (Lowery 1974a)	
<u>Troglodytes troglodytes</u> Winter wren	almost wholly insects and spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Thryothorus ludovicianus</u> Carolina wren	94% animal: insects, spiders, millipedes, sowbugs, snails, lizards, treefrogs, snakes; 6% plant: fruit, seeds, berries, mast (Bent 1948)	Year-round (Lowery 1974a)	
<u>Dumetella carolinensis</u> Gray catbird	44% animal: insects, spiders; 56% plant: fruit and berries (Bent 1948)	Apr.-May; Sept.-Oct. (Lowery 1974a)	

continued

Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Geothlypis formosa</u> Kentucky warbler	insects, spiders, some berries (Bent 1953)	Apr.-Sept. (Lowery 1974a)	
<u>Geothlypis philadelphia</u> Mourning warbler	beetles, spiders (Bent 1953)	Aug.-Oct. (Lowery 1974a)	
<u>Wilsonia citrina</u> Hooded warbler	insects (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Wilsonia pusilla</u> Wilson's warbler	insects; occasionally fruit (Bent 1953)	Sept.-Oct. (Lowery 1974a)	
<u>Wilsonia canadensis</u> Canada warbler	insects, spiders (Bent 1953)	Sept. (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: fruit, grain, weed seeds; 27% animal: mostly insects, some spiders and myriapods (Bent 1953)	Year-round (Lowery 1974a)	
<u>Euphagus carolinus</u> Rusty blackbird	53% animal: insects, spiders, myriapods, crustaceans, amphibians, snails, small fish; 47% plant: grain, seeds, fruit, mast (Bent 1958)	Nov.-Apr. (Lowery 1974a)	
<u>Quiscalus quiscula</u> Common grackle	30% animal: insects, spiders, myriapods, crayfish, earthworms, sowbugs, reptiles, snails, fish, amphibians, birds, mice; 70% plant: grain (esp. corn), fruit, weed seeds, acorns (Bent 1958)	Year-round (Lowery 1974a)	
<u>Piranga olivacea</u> Scarlet tanager	88% animal: insects; 12% plant: berries (Bent 1958)	Apr.-May (Lowery 1974a)	
<u>Piranga rubra</u> Summer tanager	insects, spiders, fruits, berries (Bent 1958)	Apr.-Sept. (Lowery 1974a)	
<u>Peuticus ludovicianus</u> Rose-breasted grosbeak	52% animal: mostly insects; 48% plant: wild fruits, seeds	Apr.-May (Lowery 1974a)	
<u>Carpodacus purpureus</u> Purple finch	mostly seeds (winter) (Bent 1968)	Nov.-Feb. (Lowery 1974a)	

continued

# Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Junco hyemalis</u> Slate-colored junco	seeds, some insects (Bent 1968)	Oct.-Feb. (Lowery 1974a)	
<u>Zonotrichia albicollis</u> White-throated sparrow	mostly weed seeds, small fruits, some insects (Bent 1968)	Sept.-Apr. (Lowery 1974a)	
<u>Melospiza georgiana</u> Swamp sparrow	55% insects, 45% weed seeds (Bent 1968)	Sept.-May (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Blarina brevicauda</u> Short-tailed shrew	animals, plants (Lowery 1974b)		
<u>Myotis austroriparius</u> Southeastern myotis	insects (Lowery 1974b)	Active year-round in warm weather; mating in spring (Lowery 1974b)	
<u>Lasiurus borealis</u> Red bat	insects (Lowery 1974b)	Active year-round in warm weather; young born May-June (Lowery 1974b)	
<u>Lasiurus seminolus</u> Seminole bat	insects (Lowery 1974b)	Active year-round in warm weather; young born in June (Lowery 1974b)	
<u>Lasiurus cinereus</u> Hoary bat	insects		
<u>Desypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants	Active year-round; breeds Jan.-Sept. (Lowery 1974b)	0.38/acre (bottomland) Murray 1970

continued

Appendix 6.3(24). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sciurus carolinensis</u> Gray squirrel	plant material (Lowery 1974b)	Active year-round; breeds Dec.-Feb.; May-Aug. (Lowery 1974b)	
<u>Sciurus niger</u> Fox squirrel	plant material, insects (Lowery 1974b)	Active year-round; breeds Jan., May-Jun. (Lowery 1974b)	
<u>Glaucomys volans</u> Southern flying squirrel	plant material, birds (Lowery 1974b)	Active year-round; births in spring and fall (Lowery 1974b)	
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds in Mar.-Oct. (Lowery 1974b)	
<u>Peromyscus gossypinus</u> Cotton mouse	plant material (Lowery 1974b)	Active year-round; breeding lowest in summer (Lowery 1974b)	
<u>Sigmodon hispidus</u> Hispid cotton rat	plant material; bird eggs and young, insects, crayfish (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	
<u>Neotoma floridana</u> Eastern wood rat	plant material, snails, insects (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat	plant material; aquatic animals (Lowery 1974b)	Active year-round; breeding peaks Nov. and Mar. (Lowery 1974b)	
<u>Myocastor coypus</u> Nutria	aquatic vegetation (Lowery 1974b)		
<u>Urocyon cinereoargenteus</u> Gray fox	rats, mice, insects, berries, fruit, corn, mast (Lowery 1974b)	Active year-round; breeds late winter (Lowery 1974b)	
<u>Euarctos americanus</u> American black bear	acorns, berries, meat (Lowery 1974b)	(Hibernates" Nov.-Mar. (Lowery 1974b)	
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds in Dec.-Jan. (Lowery 1974b)	
<u>Mustela vison</u> North American mink	crayfish, rodents, birds, fish, crabs, frogs (Lowery 1974b)	Active year-round births in early spring (Lowery 1974b)	

continued

Appendix 6.3(24). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Mephitis mephitis</u> Striped skunk	insects, crayfish, amphibians, small rodents, small amounts of plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Lutra canadensis</u> Nearctic river otter	crabs, crayfish, fish, frogs, turtles, snakes (Lowery 1974b)	Breeds in late fall (Lowery 1974b)	
<u>Lynx rufus</u> Bobcat	rabbits, squirrels, small rodents, small birds, carrion (Lowery 1974b)	Mates mid-winter, birth in early spring (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer	plant material (Lowery 1974b)	Breeds in Sept.-Mar. (Lowery 1974b)	1/21-1/73 bottom- land (Murray 197

Appendix 6.3(25). Macroinvertebrates identified in the Swamp Forest Habitat of coastal southeastern Louisiana (Thomas 1975, Lafourche Parish; Zizer 1975, Ascension Parish; Louten and Bouchard 1976, Lafourche Parish).

Phylum Coelenterata

Class Hydrozoa

Family Hydridae

Hydra spp.

Phylum Platyhelminthes

Class Turbellaria (flatworms)

Family Planariidae

Dugesia sp.

Family Macrostomidae

Macrostomum sp.

Family Typhloplanidae

Mesostoma sp.

Phylum Ectoprocta (Bryozoa)

Class Phylactolaemata

Family Plumatellidae

Fredericella sp.

Phylum Annelida

Class Oligochaeta (earthworms)

Family Naididae

Dero spp.

Aulophorus spp.

Pristina spp.

Nais spp.

Class Hirudinea (leeches)

Family Glossiphoniidae

Helobdella fusca

Helobdella lineata

Placobdella papillifera

Placobdella parasitica

Phylum Mollusca

Class Gastropoda

Family Ancyliidae (limpets)

Ferrissia sp.

Family Lymnaeidae (pond snails)

Lymnaea sp.

Family Physidae (pouch snails)

Physa sp.

Family Planorbidae (orb snails)

Heliosoma anceps

Gyraulus sp.

Promenetus sp.

Family Amnicolidae

Family Viviparidae

Viviparus sp.

continued

Class Pelecypoda (bivalves)

Family Sphaeriidae (fingernail clams, seed shells)

Pisidium sp.

Musculium sp.

Phylum Arthropoda

Class Arachnoidea

Order Hydracarina (water mites)

Family Hydrachnidae

Hydrachna sp.

Family Limnesiidae

Limnesia sp.

Family Unionicolidae

Koenikea sp.

Neumania sp.

Unionicola sp.

Family Pionidae

Piona sp.

Family Arrenuridae

Arrenurus spp.

Class Crustacea

Order Isopoda (aquatic sow bugs)

Family Asellidae

Asellus militaris

Order Amphipoda (scuds, sideswimmers)

Family Talitridae

Hyaella azteca

Order Decapoda

Family Astacidae

Cambarellus shutfeldti

Procambarus clarkii (swamp crawfish)

Family Portunidae

Callinectes sapidus (blue crab) (rare)

Family Palaemonidae

Palaemonetes paludosus

Class Insecta

Order Ephemeroptera (mayflies)

Family Caenidae

Caenis diminuta

Caenis sp.

Family Baetidae

Callibaetis sp.

Order Odonata (dragonflies, damselflies)

Family Gomphidae

Aphylla williamsoni

Family Aeschnidae

Nasiaeschna pentacantha

Anax junius

Coryphaeschna ingens

Epiaeschna heros

continued

Family Libellulidae

Perithemis tenera  
Pachydiplax longipennis  
Erythemis simolicicollis  
Erhthrodiplex minuscula  
Erythrodiplex berenice  
Cannacria gravaida  
Celithemis eponina  
Libellula incesta  
Libellula needhami  
Libellula vibrans  
Trames lacerata  
Trames onusta  
Pantala flavescens  
Pantala hymenea

Family Lestidae

Lestes sp.

Family Coenagrionidae

Enallagma signatum  
Ischnura prognatha  
Ischnura rambur  
Anomalagrion hastatum

Order Orthoptera

Family Tridactylidae (pygmy sand crickets)

Tridactylus sp.

Order Hemiptera (true bugs)

Family Corixidae (water boatmen)

Family Notonectidae (back swimmers)

Buenoa elegans  
Buenoa scimitra  
Notonecta undulata  
Notonecta uhleri

Family Pleidae (pygmy backswimmers)

Plea striola

Family Naucoridae (creeping water bugs)

Pelocoris femoratus

Family Belostomatidae (giant water bugs)

Belostoma fusciventre  
Belostoma bakeri  
Belostoma flumineum  
Belostoma lutarium  
Belostonia testaceum  
Lethocerus griseus  
Lethocerus uhleri

Family Nepidae (water scorpions)

Curicta drakei  
Ranatra buenoi  
Ranatra nigra  
Ranatra australis

Family Gerridae (water striders, pond skaters)

Trepobates sp.  
Rheumatobates hungerfordi  
Gerris canaliculatus  
Gerris marginatus  
Limnogonus hesione

continued

- Family Veliidae (broad-shouldered water striders)  
Velia watsoni  
Velia brachialis  
Microvelia hinei
- Family Hydrometridae (marsh treaders)  
Hydrometra martini  
Hydrometra australis spp.  
Hydrometra hungerfordi
- Family Hebridae (velvet water bugs)  
Hebrus sp.
- Family Mesoveliidae (water treaders)  
Mesovelia mulsanti bisignata  
Mesovelia amoena
- Family Saldidae (shore bugs)  
Saldula sp.
- Order Coleoptera (beetles)
- Family Haliplidae (crawling water beetles)  
Peltodytes sexmaculatus  
Peltodytes dunavani  
Peltodytes sp.
- Family Coccinellidae  
Pentilia misella  
Scymnus (Pullus) securus  
Scymnus creperus  
Scymnus socer  
Scymnus bigemmens  
Coccinella borealis  
Coccinella stigma  
Coccinella connectens  
Coccinella seriata  
Naemia fuscilabris  
Coccinella 9-notata  
Coccinella 20-maculata  
Scymnus lophanthae  
Psyllobora renifer  
Psyllobora parinotata
- Family Carabidae
- Family Cicindellidae  
Cicindella trifasciata
- Family Gyrinidae (whirligig beetles)  
Gyrinus analis  
Dineutus carolinus  
Dineutus sp.
- Family Noteridae (diving beetles)  
Colpius inflatus  
Suphisellus bicolor  
Hydrocanthus sp.
- Family Cytiscidae (predaceous diving beetles)  
Celina slossoni  
Hydrovatus sp.  
Desmopachria grana  
Bidessonotus inconspicuous  
Bidessus granarius

continued

- Hydroporous carolinus
- Hydroporous sp.
- Laccophilus gentilis gentilis
- Laccophilus fasciatus rufus
- Matus ovatus
- Coptotomus interrogatus obscurus
- Hydaticus bimarginatus
- Thermonectus basillaris
- Cybistor fimbriolatus
- Agabus sp.
- Family Hydrophilidae (water scavenger beetles)
  - Neohydrophilus castus
  - Dibolocelus ovatus
  - Tropisternus striolatus
  - Tropisternus lateralis nimbatus
  - Tropisternus blatchleyi
  - Berosus infuscatus
  - Derallus sp.
  - Enochrus sp.
  - Helochaeres maculicollis
- Family Helodidae
  - Scirtes sp.
- Order Megaloptera
  - Family Corydalidae
    - Chauloides sp. (fishflies)
- Order Trichoptera (caddis flies)
  - Family Leptoceridae
    - Oecetis sp.
    - Oecetis inconspicua
    - Trianodes sp.
  - Family Psychomyiidae
    - Cyrnellus fraternus
- Order Lepidoptera
  - Family Pyralididae (aquatic caterpillars)
    - Nymphula sp.
    - Cataclysta sp.
- Order Diptera
  - Family Tipulidae (true crane flies)
    - Tipula sp.
    - Prionocera sp.
  - Family Culicidae
    - Anopheles sp. (mosquitoes)
    - Chaoborus sp. (phantom midges)
    - Culex sp.
    - Uranotaenia sp.
    - Aedes sp.
  - Family Chironomidae (Tendipedidae) (midges)
    - Pentaneura spp.
    - Tanytarsus sp.
    - Chironomus spp.
    - Cricotopus spp.

continued

Family Ceratopogonidae (biting midges)

Culicoides sp.

Palpomyia tibialis

Palpomyia sp.

Bezzia sp.

Family Stratiomyidae (soldier flies)

Stratiomys sp.

Eulalia sp.

Odontomyia sp.

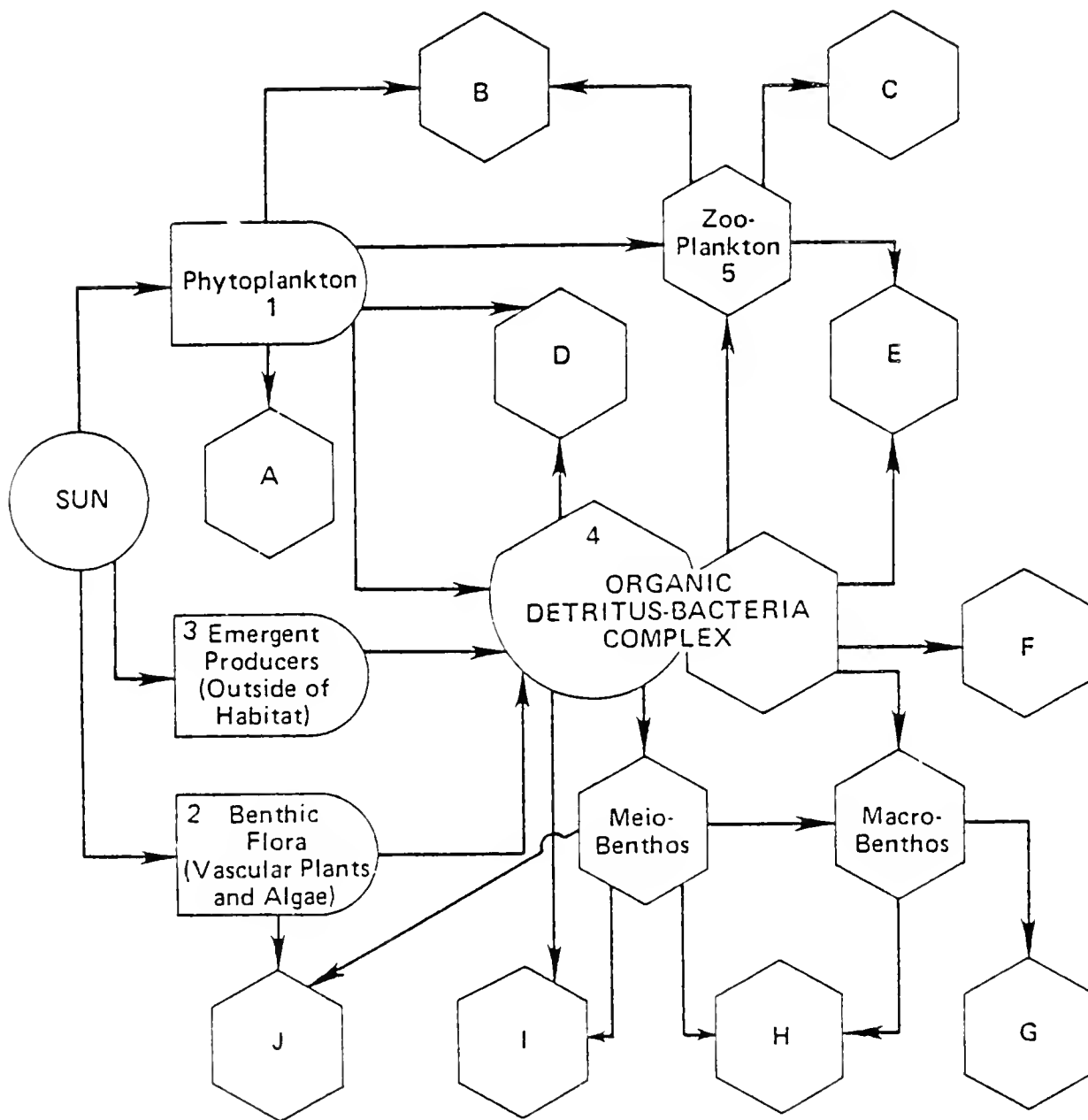
Family Ephydriidae (shore flies)

Family Tabanidae (horseflies)

Tabanus sp.

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Appendix 6.3(26). Generalized aquatic food web. Major sources of food originating within the water are phytoplankton (1) and benthic plants (2). This is supplemented by organic detritus input from adjacent habitats (3). Most of this organic production enters the aquatic detrital system (4). The lettered hexagonal symbols represent consumers differentiated by the items they feed on (as indicated by arrows). Listed are consumer species represented by each lettered hexagonal symbol (Darnell 1961, Day et al. 1973, Bahr and Hebrard 1976, Loesch 1976).



continued

A

Gulf menhaden (juvenile)

B

Threadfin shad (juvenile)

C

Sand seatrout (juvenile)

D

Marsh clam or rangia (adult)

Gulf menhaden (adult)

E

Bay anchovy (juvenile and adult)

Atlantic croaker (young-of-the-year)

F

Gulf menhaden (juvenile)

Striped mullet (juvenile and adult)

G

Largemouth bass (adult)

Black drum (juvenile)

Red drum (adult)

Silver perch (adult)

Spotted gar (adult)

Alligator gar (adult)

Yellow bass (adult)

Speckled trout (adult)

American alligator (adult)

Snapping turtle (adult)

Mississippi mud turtle (adult)

Red-eared turtle (juvenile and adult)

Graham's water snake (adult)

Western ribbon snake (adult)

Other snakes and turtles

Eared grebe (adult)

Great blue heron (adult)

Little blue heron (adult)

Green heron (adult)

Great egret (adult)

Snowy egret (adult)

Glossy ibis (adult)

White ibis (adult)

King rail (adult)

Clapper rail (adult)

Belted kingfisher (adult)

Fish crow (adult)

Black duck (adult)

Other ducks, gulls, terns and  
wading birdsG (continued)

Common muskrat (adult)

Northern raccoon (adult)

North American mink (adult)

Nearctic river otter (adult)

H

Blue crab (juvenile and adult)

Sea catfish or hardhead

(juvenile and adult)

Freshwater frum (juvenile)

Blue catfish (adult)

Brown snake (adult)

Garter snake (adult)

Pied-billed grebe (adult)

Least bittern (adult)

Northern shoveler (adult)

Hooded merganser (adult)

Virginia rail (adult)

Sora (adult)

American avocet (adult)

Western sandpiper (adult)

Solitary sandpiper (adult)

Wilson's phalarope (adult)

Common snipe (adult)

Dunlin (adult)

Piping plover (adult)

Killdeer (adult)

Other shorebirds

I

White shrimp (juvenile)

Freshwater prawn (adult)

Gizzard shad (adult)

Hogchoker (adult)

Pinfish (juvenile)

Spot (juvenile and adult)

Tidewater silversides (adult)

Atlantic croaker (juvenile and adult)

Channel catfish (juvenile)

Blue catfish (juvenile)

JSouthern painted turtle  
(juvenile and adult)

Sheepshead (adult)

Pinfish (adult)

American coot (adult)

Canada goose (adult)

Seaside sparrow (adult)

Nutria (adult)

Appendix 6.3(27). A taxonomic listing of zooplankton identified in the Near-shore Gulf Habitat off southeastern Louisiana (Bouchard and Turner 1976).

Protozoa

Dinoflagellida

Coelenterata

Hydrozoa

Ctenophora

Rotifera

Mollusca

Pelecypoda (larvae)

Gastropods

Pteropoda

Annelida

Polychaeta

Nereis succinea

Arthropoda

Crustacea

Cladocera

Evadne tergentina

Penilia avirostris

Podon polyphemoides

Ostracoda

Copepods

Calanoida

Acartia tonsa

A. spinata

A. danae

Candacia bipinnata

Centropages hamatus

C. furcatus

Eucalanus pileatus

E. sp.

Euchaeta marina

Eurytemora hirundoides

Labidocera aestiva

L. sp.

Mormonilla sp.

Paracalanus sp.

Pontella sp.

continued

Appendix 6.3(27). Concluded.

Pontellopsis sp.  
Rhinealanus cornutus  
Temora turbinata  
T. stylifera  
Tortanus sp.  
Undinula vulgaris

Cyclopoida

Clytemmestra scutellata  
Copilia marabilis  
Corycaeus sp.  
Halicyclops fosteri  
Oithona sp.  
Oncaea mediterranea  
O. sp.  
Saphirella sp.  
Sapphrina nigromaculata  
S. sp.

Harpacticoida

Alteutha sp.  
Euterpina scutifrons  
Macrosetella sp.

Caligoida

Caligus sp.

Cirripedia

Nauplii

Malacostraca

Amphipoda

Isopoda

Cumacea

Mysidacea

Stomatopoda (larvae)

Decapoda

Anomura

Brachyura (Zoeae)

VIII. Echinodermata

IX. Chaetognatha (arrow worms)

Sagitta sp.

X. Chordata (phylum)

Urochordata (tunicates)

Vertebrata (fish larvae)

Appendix 6.3(28). A taxonomic list of benthic infauna taken by ponar grab sampler along the southeastern Louisiana coast (Ragan 1976).

Coelenterata

Scyphozoa: Medusae

Anthozoa: Sea anemones

Nemertinea: Ribbon worms

Aschelminthes

Nematoda: Roundworms

Annelida

Polychaeta: Sandworms

Mollusca

Gastropoda:

Cancellaria reticulata

Oliva sayana

Polinices duplicata

Other gastropods

Pelecypoda:

Mulina sp.

Other Pelecypods

Arthropoda

Crustacea

Subclass Malacostraca

Isopoda: Isopods

Amphipoda: Amphipods

Clibanarius vittatus (hermit crab)

Other hermit crabs

Spider crabs

Unidentified crabs

Snapping shrimp - Crangon sp.

Sea bobs - Xiphopenaeus sp.

Unidentified shrimp

Phoronida

Chaetognatha

Arrow worm - Sagitta sp.

Echinodermata

Ophiuroidea: Brittle star

Chordata

Cephalachordata - Salpa

Vertebrata:

Goby

Juvenile fish

Appendix 6.3(29). Representative vertebrates, excluding fishes, of the Nearshore Gulf Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>REPTILES</u>			
<u>Chelonia mydas</u> Atlantic green turtle			Threatened
<u>Eretmochelys umbricata</u> Atlantic hawksbill			Endangered
<u>Caretta caretta</u> Atlantic loggerhead			Endangered
<u>Dermochelys coriacea</u> Atlantic leatherback			Threatened
<u>BIRDS</u>			
<u>Gavia immer</u> Common loon	principally fish; also crustaceans and roots of aquatic plants (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Podiceps auritus</u> Horned grebe	shrimp and other crustaceans, small fish, some plant material, feathers (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Podiceps nigricollis</u> Eared grebe	insects, shrimp, some water plants, feathers (Bent 1919)	Oct.-May (Lowery 1974a)	
<u>Podilymbus podiceps</u> Pied-billed grebe	mostly animal: aquatic worms and insects, snails, small frogs and fish. plants: seeds and soft parts (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Pelecanus occidentalis</u> Brown pelican			Extinct in Chenier Plain
<u>Phalacrocorax auritus</u> Double-crested cormorant	mostly fish; rarely crustaceans, mollusks, eel grass (Bent 1922)	Sept.-Apr.	"Blue List" Nat. Aud. Soc. (1976)
<u>Phalacrocorax olivaceus</u> Olivaceous cormorant		Year-round	

continued

# Appendix 6.3(29). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Fregata magnificens</u> Magnificent frigate bird	mostly fish (Bent 1922)	Apr.-Oct. (Lowery 1974a)	
<u>Aythya marila</u> Greater scaup	crustaceans, mollusks, aquatic plants (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Aythya affinis</u> Lesser scaup	similar to <u>A. marila</u> (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Bucephala clangula</u> Common goldeneye	similar to scaup, but also minnows, small frogs, tadpoles, crayfish, snails, insects (Bent 1923)	Nov.-Feb. (Lowery 1974a)	
<u>Clangula hyemalis</u> Old squaw	88% animal: crustaceans, mollusks, insects, fish; 12% plant: grasses, pondweeds, misc. (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	
<u>Melanitta deglandi</u> White-winged scoter	94% animal: mollusks, crustaceans, insects, fish; 6% plant: aquatic plants (Cottam 1939)	Oct.-May (Lowery 1974a)	
<u>Melanitta perspicillata</u> Surf scoter	88% animal: mollusks, crustaceans, insects, fish, echinoderms; 12% plant: pondweeds, misc. (Cottam 1939)	Oct.-May (Lowery 1974a)	
<u>Melanitta nigra</u> Black scoter	90% animal: mollusks, crustaceans, insects, fish, echinoderms; 10% plant: aquatic plants, algae (Cottam 1939)	Oct.-May (Lowery 1974a)	
<u>Mergus serrator</u> Red-breasted merganser	primarily fish; also crustaceans and mollusks (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Pandion haliaetus</u> Osprey	bowfin, carps, catfish, eel, flounder, goldfish, menhaden, mullet, pickerel, shad, sunfish (Bent 1937)	Sept.-Dec., Feb.-May (Lowery 1974a)	
<u>Falco peregrinus</u> American peregrine falcon	mostly birds: gulls, terns, ducks, coots, gallinules, rails, shorebirds, quail, kestrel, songbirds; also rodents, rabbits, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Larus argentatus</u> Herring gull	dead fish and other detritus; live fish, crustaceans, mollusks, echinoderms, worms, insects (Bent 1921)	Nov.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(29). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Larus delawarensis</u> King-billed gull	refuse, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Larus atricilla</u> Laughing gull	mostly small fish; also eggs of other seabirds, refuse (Bent 1921)	Year-round (Lowery 1974a)	
<u>Larus philadelphia</u> Bonaparte's gull	small fish, crustaceans, marine worms, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Sterna forsteri</u> Forster's tern	insects, floating carrion (Bent 1921)	Year-round (Lowery 1974a)	
<u>Sterna hirundo</u> Common tern	almost wholly small fish; also shrimp and aquatic insects (Bent 1921)	Sept.-May (Lowery 1974a)	
<u>Sterna albifrons</u> Least tern	small fish; some crustaceans and insects (Bent 1921)	Apr.-Aug. (Lowery 1974a)	
<u>Sterna maxima</u> Royal tern	almost wholly small fish; also crabs, shrimp (Bent 1921)	Year-round (Lowery 1974a)	
<u>Sterna sandvicensis</u> Sandwich tern	almost wholly small fish; also shrimp, squid (Bent 1921)	Apr.-Aug. (Lowery 1974a)	
<u>Sterna caspia</u> Caspian tern	almost wholly small fish; also shrimp and other surface-swimming aquatic life (Bent 1921)	Year-round (Lowery 1974a)	
<u>Chlidonias niger</u> Black tern	small fish, insects (Bent 1921)	Apr.-Sept. (Lowery 1974a) (non-breeding)	
<u>Rynchops niger</u> Black skimmer	small fish; small crustaceans (Bent 1921)	Year-round (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Tursiops truncatus</u> Atlantic bottle-nosed dolphin	mullet, other fish, shrimp (Lowery 1974b)		Intelligent (Lilly 1967)

Appendix 6.3(30). Fishes of the Nearshore Gulf and Inland Open Water habitats in the Chenier plain.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY CARCHARINIDAE REQUIEM SHARKS				
<u>Aprionodon isodon</u> (Valenciennes)	Carnivore; predator/scavenger (Conner Unpubl.)	Demersal; usually in deeper marginal areas; sometimes move into beach area (Conner Unpubl.)	Mainly warm months (Conner Unpubl.)	None
Finetooth Shark				
<u>Carcharhinus leucas</u> (Valenciennes)	Carnivore; predator/scavenger; fishes, macroinvertebrates, carrion (Bigelow and Schroeder 1948)	Demersal; widespread (Conner Unpubl.)	Most common large shark (Conner Unpubl.)	Minor value as industrial bottom-fish
Bull Shark				
<u>Carcharhinus limbatus</u> (Valenciennes)	Carnivore; mainly predator on fishes (Bigelow and Schroeder 1948)	Demersal; usually in deeper marginal areas; occasionally move to shore (Conner Unpubl.)	Warm months (Conner Unpubl.)	None
Blacktip Shark				
<u>Megapristion brevirostris</u> (Poey)	Carnivore; predator/scavenger; (Bigelow and Schroeder 1948)	Demersal; see above entry (Conner Unpubl.)	Rare; warm months (Conner Unpubl.)	None
Lemon Shark				
<u>Rhizoprionodon terraenovae</u> (Richardson)	Carnivore; predator of small fishes, invertebrates (Bigelow and Schroeder 1948)	Demersal; see above entry	See above entry	None
Atlantic Sharpnose Shark				
FAMILY SPHYRINIDAE HAMMERHEAD SHARKS				
<u>Sphyrna tiburo</u> (Linnaeus)	Carnivore; predator/scavenger; mainly macroinvertebrates (Bigelow and Schroeder 1948)	Demersal; mainly along shoreline (Bigelow and Schroeder 1948)	Locally abundant; mainly warm months (Conner Unpubl.)	None
Bonnethead				

continued

# Appendix 6.3(30). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Sphyrna tudes</u> (Valenciennes) Smalleye Hammerhead	Carnivore; predator, mainly on fishes (Bigelow and Schroeder 1948)	Demersal; occasionally straying into deeper marginal areas from offshore (Conner Unpubl.)	Very rare (Conner Unpubl.)	None
FAMILY PRISTIDAE SAWFISHES				
<u>Pristis pectinata</u> Latham Smalltooth Sawfish	Carnivore; predator on small fishes, benthic macroinvertebrates (Bigelow and Schroeder 1953)	Demersal; usually in very shallow water (Bigelow and Schroeder 1953)	Rare (Conner Unpubl.)	None
<u>Pristis perotteti</u> Muller and Henle Largetooth Sawfish	see <u>P. pectinata</u> entry	see <u>P. pectinata</u> entry	Very rare (Conner Unpubl.); near margin of range (Walls 1975)	None
FAMILY RHINOBATIDAE GUITARFISHES				
<u>Rhinobatos lentiginosus</u> (Garman) Atlantic Guitarfish	Carnivore; predator on benthic invertebrates, fishes (Bigelow and Schroeder 1953)	Demersal; usually in very shallow water (Bigelow and Schroeder 1953)	Very rare (Conner Unpubl.)	None
FAMILY TORPEDINIDAE ELECTRIC RAYS				
<u>Narcine brasiliensis</u> (Ocfers) Lesser Electric Ray	Carnivore; predator on benthic invertebrates (chiefly polychaetes) (Bigelow and Schroeder 1953)	Demersal; mainly on sand bottoms (Walls 1975)	Rare; occasionally taken in shrimp trawls (Conner Unpubl.)	None
FAMILY RAJIDAE SKATES				
<u>Raja texana</u> Chandler Roundel Skate	Carnivore predator on benthic invertebrates (Bigelow and Schroeder 1953)	Demersal; deeper marginal areas only (Conner Unpubl.)	Rare; occasionally taken in shrimp trawls (Conner Unpubl.)	None

continued

Appendix 6.3(30). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY DASYATIDAE STINGRAYS				
<u>Dasyatis americana</u> Hildebrand and Schroeder	Carnivore; predator on benthic invertebrates (Bigelow and Schroeder 1953)	Demersal; mainly in shallow marginal areas (Bigelow and Schroeder 1953)	Locally abundant at times (Conner Unpubl.)	None
Southern Stingray				
<u>Dasyatis sabina</u> (LeSueur)	see <u>D. americana</u> entry	Demersal; widespread (Conner Unpubl.)	Generally abundant (Conner Unpubl.)	None
Atlantic Stingray				
<u>Dasyatis sayi</u> (LeSueur)	see <u>D. americana</u> entry	Demersal; mainly shallow marginal areas (Bigelow and Schroeder 1953)	Very rare; occasionally taken in trawls (Conner Unpubl.)	None
Bluntnose Stingray				
<u>Gymnura micrura</u> (Bloch and Schnieder)	Carnivore; predator/scavenger or benthic invertebrates (Bigelow and Schroeder 1953)	Demersal; preferring sandy bottoms (Bigelow and Schroeder 1953)	Very rare; sometimes taken in trawls in warm months (Conner Unpubl.)	None
Smooth Butterfly Ray				
FAMILY MYLIOBATIDAE EAGLE RAYS				
<u>Aetobatus narinari</u> (Euphrasen)	Carnivore; predator mainly on bivalves (Bigelow and Schroeder 1953)	Demersal; widespread (Bigelow and Schroeder 1953)	Mainly warm months (Conner Unpubl.)	None sometimes damage mol- lusk beds (Bigelow and Schroeder 1953)
Spotted Eagle Ray				
<u>Rhinoptera bonasus</u> (Mitchill)	see <u>Aetobatus</u> entry	Demersal; widespread (Bigelow and Schroeder 1953)	Rare; mainly warm months	None
Cownose Ray				
FAMILY MOBULIDAE MANTAS				
<u>Manta birostris</u> (Walbaum)	Carnivore; predator on fishes, macroinvertebrates (Bigelow and Schroeder 1953)	Pelagic;	Rare; sporadic; strays from open Gulf (Conner Unpubl.)	None
Atlantic Manta				

continued

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>FAMILY ACIPENSERIDAE</u> STURGEONS				
<u>Acipenser oxyrinchus Mitchill</u>	Carnivore; sucker-type feeder on benthic invertebrates (Vladykov and Greeley 1963)	Demersal;	Very rare; occasionally taken in shrimp trawls (Conner Unpubl.)	None
Atlantic Sturgeon				
<u>FAMILY LEPISOSTEIDAE</u> GARS				
<u>Lepisosteus osseus</u> (Linnaeus)	Carnivore; predator on fishes, macroinvertebrates (Suttkus 1963)	Pelagic;	Very rare; occasionally near tidal passes, after freshets; mainly brackish, freshwater form (Conner Unpubl.) (Suttkus 1963)	None
Longnose Gar				
<u>Lepisosteus spatula</u> Lacepede	Carnivore; predator/scavenger on fishes, larger invertebrates -especially mullet, blue crabs (Suttkus 1963) (Darnell 1958)	Pelagic;	Rare; see L. osseus entry; this form slightly more common than longnose (Conner Unpubl.)	None
Alligator Gar				
<u>FAMILY ELOPIDAE</u> TARPONS				
<u>Elops saurus</u> Linnaeus	Carnivore; predator on small fishes, invertebrates (Hildebrand 1963)	Pelagic; mainly along shore (Conner Unpubl.)	Abundant; especially during summer-early fall (Conner Unpubl.)	None
Ladyfish - Adults				
Ladyfish - Young	For larger juveniles see adult entry	Pelagic; widespread as planktonic larvae; for juveniles see adult entry	Abundant as larvae (spring) (Conner Unpubl.) larger juveniles moderately abundant - late summer-fall (Conner Unpubl.)	None
Tarpon				
<u>Megalops atlantica</u> Valenciennes	See Nearshore Gulf entry	See NG entry	See NG entry	

continued

# Appendix 6.3(30). Continued.

		<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY ANGUILLIDAE FRESHWATER EELS					
<u>Anguilla rostrata</u> (LeSueur)		Adults carnivorous; predatory on fishes, macroinvertebrates (Bigelow and Schroeder 1953)	Demersal as adults, elvers planktonic as larvae	Sporadic; mainly pass through area as seasonal (Conner Unpubl.)	None
American Eel					
FAMILY MURAENIDAE MORAYS					
<u>Gymnothorax moringua</u> (Cuvier)		Carnivore; predator/scavenger on fishes, macroinvertebrates (Winn and Bardash 1959)	Demersal; mainly near reefs, pilings, oil rigs, jetties, wrecks (Conner Unpubl.)	Rare; occasionally taken by trawls, hook and line fishing (Conner Unpubl.)	None
Spotted Moray					
FAMILY CONGRIDAE CONGER EELS					
<u>Maraconger caudilimbatus</u> (Poey)			Demersal;	Rare; occasionally taken in shrimp trawls (Conner Unpubl.)	None
Margintail Conger					
FAMILY OPHICHTHIDAE SNAKE EELS					
<u>Myrophis punctatus</u> Lutken		Carnivore; predator on benthic invertebrates (Springer and Woodburn 1960)	Demersal; widespread (Conner Unpubl.)	Moderately abundant but more so in inland areas (Conner Unpubl.) (Tarbox 1974)	None
Speckled Worm Eel - Adults					
Speckled Worm Eel - Young			Larvae planktonic, widespread (Conner Unpubl.) Elvers demersal mainly near passes (Conner Unpubl.)	Abundant, late fall to early spring (Sabins 1973)	None
<u>Mystriophis interinctus</u> (Richardson)			Demersal; generally in deeper marginal areas (Conner Unpubl.)	Rare; occasionally taken by trawlers (Conner Unpubl.)	None
Spotted Spoon-Nose Eel					

continued

# Appendix 6.3(30). Continued.

		<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Myxtriophis mordax</u> (Poey)		Carnivore; predator on fishes, macroinvertebrates (Conner Unpubl.)	Demersal; mainly in deeper marginal areas (Conner Unpubl.) (Vladykov and Greeley 1963)	Rare, although not so much as above species; occasionally taken in trawlers and by hook and line (Conner Unpubl.)	None
Snapper Eel					
<u>Ophichthus gomesi</u> (Castlenau)		Carnivore; predator/scavenger on fishes, macroinvertebrates (Conner Unpubl.)	Demersal; widespread	Moderately abundant, often taken in trawls (Conner Unpubl.)	None
Shrimp Eel - Adults					
Shrimp Eel - Young			Larvae planktonic, wide-spread (Conner Unpubl.)	Probably abundant seasonally - no local data	None
FAMILY CLUPEIDAE HERRINGS					
<u>Alosa chrysochloris</u> (Rafinesque)		Carnivore; predator on fishes, neustonic invertebrates (Conner Unpubl.) (Hildebrand 1963)	Pelagic; mainly in low salinity to fresh (Conner Unpubl.)	Rare; primarily freshwater form (Conner Unpubl.)	None
Skipjack Herring					
<u>Brevoortia gunteri</u> Hildebrand		Omnivore; strainer of plankton (Hildebrand 1963) -forage species	Pelagic; most schools farther offshore (Conner Unpubl.)	Relatively rare; mainly found farther offshore (Conner Unpubl.)	Minor component of menhaden fishery
<u>Brevoortia patronus</u> Goode					
Gulf Menhaden					
<u>Dorosoma cepedianum</u> (LeSueur)		Omnivore; strainer/grazer of plankton, detritus (Darnell 1958) (Miller 1963)	Pelagic; see skipjack herring entry	See skipjack herring entry	None
Gizzard Shad					
<u>Dorosoma petenense</u> (Günther)		Omnivore; strainer of plankton (Miller 1963)	Pelagic; see skipjack herring entry	See skipjack herring entry	None
Threadfin Shad					

continued

# Appendix 6.3(30). Continued.

## FAMILY SYNODONTIDAE LIZARDFISHES

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Synodus foetens</u> (Linnaeus)	Carnivore; predator, mainly on fishes (Anderson, Gehringer and Berry 1966) (Springer and Woodburn 1960)	Demersal, widespread except along beaches (Conner Unpubl.) (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry and White 1971)	Abundant, especially in shrimp trawls; may move offshore in winter (Gunter 1945) (Moore, Brushser and Trent 1970)	Minor component of industrial bottom-fish catch—primarily farther offshore (Moore, Brushser and Trent 1970)
Inshore Lizardfish - Adults				
Inshore Lizardfish - Young	Carnivore; predator on zooplankton, including larval fishes (Anderson, Gehringer and Berry 1966)	Larvae planktonic, juveniles demersal	Moderately abundant in summer (Tarbox 1974)	None

## FAMILY ARIDAE SEA CATFISHES

<u>Arius felis</u> (Linnaeus)	Omnivore; grazer/scavenger type feeder on carrion, detritus (Darnell 1958) (Springer and Woodburn 1960)	Demersal; widespread (Conner Unpubl.)	Abundant, especially in warm months (Gunter 1945)	8-10% of industrial bottomfish catch (Moore, Brushser and Trent 1970) —considered nuisance by anglers
Sea Catfish - Adults				
Sea Catfish - Young		Larvae and postlarvae orally incubated by male; juveniles as adults	See adult entry	None
<u>Bagre marinus</u> (Mitchill)	Omnivore; essentially as above species (Reid, Inglis and Hoese 1956)	Demersal; widespread (Conner Unpubl.)	Essentially as in sea catfish but more restricted to warm months; offshore movement in winter (Gunter 1945)	Minor component of industrial bottom-fish catch (generally not distinguished from <u>Arius felis</u> in statistics)
Gafftopsail Catfish				

continued

# Appendix 6.3(30). Continued.

		Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Harengula pensacolatae</u> Goode and Bean		Omnivore; plankton strainer (Rivas 1963)	Pelagic; schooling near surface; widespread (Conner Unpubl.) (Rivas 1963)	Often abundant, especially during warm months (Conner Unpubl.)	None
Scaled Sardine - Adults		-forage species			
Scaled Sardine - Young			Larvae planktonic; mainly farther offshore; juveniles essentially as adults	Juveniles abundant along beaches-summer and fall (Tarbox 1974) (Conner Unpubl.); main larval concentrations farther offshore (Sabins 1973) (Hoesse 1965), spring and summer (Sabins 1973)	None
<u>Opisthonema oglinum</u> (LeSueur)		Omnivore; plankton strainer (Hildebrand 1963)	Pelagic; schooling near surface; mainly farther offshore (Conner Unpubl.)	Rare, occasionally taken along beaches during warm months (Conner Unpubl.)	None
Atlantic Thread Herring					
FAMILY ENGRAULIDAE ANCHOVIES					
<u>Anchoa hepsetus</u> (Linnaeus)		Carnivore; predator on small fishes, invertebrates (Hildebrand 1963) (Springer and Woodburn 1960)	Pelagic; widespread in schools (Conner Unpubl.)	Abundant, especially in warm months (Conner Unpubl.) (Tarbox 1974)	None
Striped Anchovy - Adults					
Striped Anchovy - Young		-forage fish	Larvae planktonic; widespread; juveniles as adults (Conner Unpubl.)	Abundant, spring to early autumn (Conner Unpubl.) (Sabins 1973) (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971)	None
<u>Anchoa lyolepis</u> (Evermann and Marsh)			Pelagic;	*Rare; occasionally appear as juveniles in summer (Conner Unpubl.) (Sabins 1973)	None
Dusky Anchovy					
<u>Anchoa mitchilli</u> (Valenciennes)		Carnivore; predator on fishes, invertebrates (Hildebrand 1963) (Darnell 1958)	Pelagic; widespread in schools (Conner Unpubl.) (Hildebrand 1963)	Very abundant, especially in warmer months (Conner Unpubl.) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry and White 1971)	None
Bay Anchovy - Adults		-forage species			
Bay Anchovy - Young		Carnivore; predator on zooplankton (chiefly copepods) (Hildebrand 1963)	Larvae planktonic, widespread; juveniles as adults	Present year-round, abundant; peak catches usually in summer (Sabins 1973) (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry and White 1971)	None

continued

# Appendix 6.3(30). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY SYNODONTIDAE LIZARDFISHES				
<u>Synodus foetens</u> (Linnaeus)	Carnivore; predator, mainly on fishes (Anderson, Gehringer and Berry 1966) (Springer and Woodburn 1960)	Demersal, widespread except along beaches (Conner Unpubl.) (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Cairdy and White 1971)	Abundant, especially in shrimp trawls; may move offshore in winter (Gunter 1945) (Moore, Brushner and Trent 1970)	Minor component of industrial bottom-fish catch—primarily farther offshore (Moore, Brushner and Trent 1970)
Inshore Lizardfish - Adults				
Inshore Lizardfish - Young	Carnivore; predator on zooplankton, including larval fishes (Anderson, Gehringer and Berry 1966)	Larvae planktonic, juveniles demersal	Moderately abundant in summer (Tarbox 1974)	None
FAMILY ARIDAE SEA CATFISHES				
<u>Arius felis</u> (Linnaeus)	Omnivore; grazer/scavenger; type feeder on carrion, detritus (Darnell 1958) (Springer and Woodburn 1960)	Demersal; widespread (Conner Unpubl.)	Abundant, especially in warm months (Gunter 1945)	8-10% of industrial bottomfish catch (Moore, Brushner and Trent 1970) -considered nuisance by anglers
Sea Catfish - Adults				
Sea Catfish - Young		Larvae and postlarvae orally incubated by male; juveniles as adults	See adult entry	None
<u>Bagre marinus</u> (Mitchill)	Omnivore; essentially as above species (Reid, Inglis and Hoese 1956)	Demersal; widespread (Conner Unpubl.)	Essentially as in sea catfish but more restricted to warm months; offshore movement in winter (Gunter 1945)	Minor component of industrial bottom-fish catch (generally not distinguished from <u>Arius felis</u> in statistics)
Caffropsail Catfish				
FAMILY BATRACHOIDIDAE TOADFISHES				
<u>Opsanus beta</u> (Goode and Bean)	Carnivore; predator on fishes, macroinvertebrates (Springer and Woodburn 1960)	Demersal; mainly associated with pillings, jet-ties, shell reefs (Conner Unpubl.)	Locally abundant, see habitat entry, especially around reefs (Conner Unpubl.)	None
Gulf Toadfish				

continued

Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>E Economic Importance</u>
<u>Porichthys porosissimus</u> (Valenciennes) Atlantic Midshipman	Carnivore; predator on mysids, amphipods, small fishes (Gilbert 1968)	Demersal; widespread bur- rowing in substrate during day (Conner Unpubl.) (Gilbert 1968)	Relatively sparse; main concentrations farther off- shore; taken mainly in shrimp trawls; cryptic and nocturnal (Adams 1960)	None
FAMILY GOBIESCIDAE CLINGFISHES				
<u>Gobiesox strumosus</u> Cope Skilletfish		Demersal; see Gulf toad- fish entry	See Gulf toadfish entry	None
FAMILY ANTENNARIIDAE FROGFISHES				
<u>Histrio histrio</u> (Linnaeus) Sargassumfish	Carnivore; predator on small fish, invertebrates (Adams 1960)	Pelagic; associated with floating clumps of sar- gassum (Adams 1960)	Sparse	None
FAMILY OGCOCEPHALIDAE BATFISHES				
<u>Ogcocephalus radiatus</u> (Mitchill) Polka-Dot Batfish		Demersal; mainly in deeper marginal areas (Conner Unpubl.)	Sparse	None
FAMILY BREMACEROTIDAE COTLETS				
<u>Bregmaceros atlanticus</u> Goode and Bean Antenna Codlet		Demersal; deeper marginal areas only (Conner Unpubl.)	Sparse	None

continued

# Appendix 6.3(30). Continued.

		Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY GADIDAE CODFISHES					
<u>Urophycis floridanus</u> (Bean and Dresel)		Carnivore; predator on small fishes, invertebrates (Springer and Woodburn 1960)	Demersal; widespread but mainly in deeper areas except during onshore winter movement (Gunter 1945) (Conner Unpubl.)	Moderately abundant during cold months (Gunter 1945) (Conner Unpubl.)	None
Southern Hake					
FAMILY OPHIDIIDAE CUSK-EELS AND BROTLAS					
<u>Ophidion welschi</u> (Nichols and Breder)			Demersal; widespread (Walls 1975)	Sparse; occasionally taken in shrimp trawls (Conner Unpubl.)	None
Crested Cusk-Eel					
FAMILY EXOCOETIDAE FLYINGFISHES AND HALFBREAS					
<u>Cypselurus exsiliens</u> (Linnaeus)			Pelagic; adults usually farther offshore; larvae occasionally wash near shore (Walls 1975) (Conner Unpubl.)	Sparse	None
Bandwing Flyingfish					
<u>Cypselurus furcatus</u> (Mitchill)			Same as bandwing flyingfish	Same as bandwing flyingfish	None
Spotfin Flyingfish					
<u>Hyporhamphus unifasciatus</u> (Ranzani)		Omnivore; invertebrates and detritus (Hildebrand and Schroeder 1928)	Pelagic; widespread (Conner Unpubl.)	Moderately abundant, mainly during warm months (Conner Unpubl.)	None
Halibreak					
FAMILY BELONIDAE NEEDLEFISHES					
<u>Strongylura marina</u> (Walbaum)		Carnivore; predator on fishes, macroinvertebrates (Darnell 1958) (Springer and Woodburn 1960) (Hildebrand and Schroeder 1928)	Pelagic; widespread (Conner Unpubl.)	Abundant, especially in warm months and mainly along shorelines (Conner Unpubl.) (Parret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry and White 1971)	None
Atlantic Needlefish					

continued

# Appendix 6.3(30). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY CYPRINODONTIDAE KILLIFISHES				
<u>Cyprinodon variegatus</u> Lacépède	Omnivore; primarily herbivorous; grazer on epiphytic algae and invertebrates (Springer and Woodburn 1960) -forage species	Edge zone mainly; rarely outside inland areas (Conner Unpubl.)	Sparse, occasionally taken along beaches (Conner Unpubl.)	None
Sheepshead Minnow				
<u>Fundulus grandis</u> Baird and Girard	Omnivore; primarily carnivorous; grazer (predator on small invertebrates, carrion (Springer and Woodburn 1960) (Darnell 1958) -forage species	Same as sheepshead minnow	Same as sheepshead minnow	None
Gulf Killifish				
<u>Fundulus similis</u> (Baird and Girard)	Omnivore; see Gulf killifish entry -forage species	Along beaches (Conner Unpubl.)	Locally abundant; most common of killifishes outside of inland areas (Conner Unpubl.)	None
Longnose Killifish				
<u>Lucania parva</u> (Baird)	Carnivore; predator (grazer on invertebrates (Hildebrand and Schroeder 1928)	Same as sheepshead minnow	Same as sheepshead minnow	None
Rainwater Killifish				
FAMILY POECILIIDAE LIVEBEARERS				
<u>Gambusia affinis</u> (Baird and Girard)	Carnivore; predator (grazer on small invertebrates, especially insect larvae -forage species	Same as sheepshead minnow	Same as sheepshead minnow	None
Mosquitofish				
<u>Poecilia latipinna</u> (LeSueur)	Omnivore; primarily herbivores; grazer on epiphytic algae, detritus (Springer and Woodburn 1960) -forage species	Same as sheepshead minnow	Same as sheepshead minnow	None
Salfin Molly				

continued

Appendix 6.3(30). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY ATHERINIDAE SILVERSIDES				
<u>Membras martinica</u> (Valenciennes)	Carnivore; predator on small invertebrates (Robbins 1969)	Pelagic; surface schooler; mainly along shorelines (Robbins 1969)	Abundant along shore, especially summer and fall (Gunter 1945)	None
Rough Silverside	-forage fish			
<u>Menidia beryllina</u> (Cope)	Carnivore; predator/grazer on zooplankton, other small invertebrates (Springer and Woodburn 1960) (Barnell 1958) (Robbins 1969)	Same as rough silverside (Gunter 1945) (Conner Unpubl.)	Same as rough silverside (Gunter 1945) (Conner Unpubl.)	None
Tidewater Silverside				
FAMILY SYNGNATHIDAE PIPEFISHES AND SEAHORSES				
<u>Syngnathus louisianae</u> Gunther	Carnivore; predator on small invertebrates (Conner Unpubl.)	Associated with submerged and emergent plants; mainly in inland areas (Conner Unpubl.)	Very rare, as strays from inland areas (Conner Unpubl.)	None
Chain Pipefish				
<u>Syngnathus scovelli</u> (Evermann and Kendall)	Carnivore; predator on small invertebrates (copepods, amphipods, small decapods) (Springer and Woodburn 1960)	Same as chain pipefish (Conner Unpubl.)	Same as chain pipefish	None
Gulf Pipefish				
FAMILY PERCICHTHYIDAE TEMPERATE BASSEES				
<u>Morone saxatilis</u> (Walbaum)	Carnivore; voracious predator on small fishes	Pelagic, mainly in inland areas (Conner Unpubl.)	Very rare; occasional strays enter nearshore Gulf, presumably from TPWD or LMFC inland stocking programs (Conner Unpubl.)	Limited value as gamefish
Striped Bass				
FAMILY SERRANIDAE SEA BASSES				
<u>Centropomus philadelphicus</u> (Linnaeus)	Carnivore; predator on small fishes, benthic invertebrates	Demersal; mainly in deeper marginal areas (Walls 1975) (Moore, Brusher, and Trent 1970) (Conner Unpubl.)	Sparse; occasionally taken by shrimp trawls (Conner Unpubl.)	None, locally (farther offshore is minor component of industrial bottomfish catch (Moore, Brusher and Trent 1970))
Rock Sea Bass				

continued

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Serranus subligarius</u> (Cope)		Demersal; deeper areas only (Conner Unpubl.)	Rare; occasionally taken by shrimp trawls (Conner Unpubl.)	None
Beited Sandfish				
FAMILY POMATOMIDAE BLUEFISHES				
<u>Pomatomus saltatrix</u> (Linnaeus)	Carnivore; voracious predator on fishes, macroinvertebrates (Bigelow and Schroeder 1953)	Pelagic; normally in more offshore areas but often moving inshore in large aggregations (Conner Unpubl.) (Bigelow and Schroeder 1953)	Sporadically abundant (Conner Unpubl.)	Limited value as gamefish
Bluefish				
FAMILY RACHYCENTRIDAE COBIAS				
<u>Rachycentron canadum</u> (Linnaeus)	Carnivore; predator on fishes, macroinvertebrates (especially blue crabs) (Knapp 1950) (Gowanloch 1933)	Pelagic; normally in more offshore areas (Gowanloch 1933) (Walls 1975)	Sparse; sometimes moving into area (mainly warm months) (Conner Unpubl.)	Limited value as gamefish
Cobia				
FAMILY ECHENEIDAE REMORAS				
<u>Echeneis naucrates</u> Linnaeus	Carnivore; predator/grazer on invertebrates, carrion	Pelagic/demersal; with sharks, other large fishes (Walls 1975)	Sparse; occasionally follow sharks near shore (Conner Unpubl.)	None
Sharksucke				
<u>Remora remora</u> (Linnaeus)	Same as sharksucker	Same as sharksucker	Same as sharksucker	None
Remora				

continued

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY CARANGIDAE JACKS				
<u>Caranx crysos</u> (Mitchill) Blue Runner	Carnivore; voracious predator on fishes, macro-invertebrates (Conner Unpubl.)	Pelagic; mainly in deeper areas farther offshore (Walls 1975)	Sparse; occasionally moving in from deeper zones (Conner Unpubl.)	Limited value on gamefish
<u>Caranx hippos</u> (Linnaeus) Crevalle Jack	See blue runner entry (Hildebrand and Schroeder 1928)	Pelagic; mainly in deeper areas but often moving inshore; often around pilings, rigs (Conner Unpubl.)	Moderately abundant (especially warm months) (Conner Unpubl.)	Limited value as gamefish
<u>Caranx latus</u> Agassiz Horse-eye Jack	See blue runner entry (Conner Unpubl.)	See blue runner entry	Kare	Limited value as gamefish
<u>Chloroscombrus chrysurus</u> (Linnaeus) Atlantic Rumper		Demersal, widespread (Gunter 1945)	Moderately abundant in shrimp trawls, especially in summer (Conner Unpubl.)	Minor component of industrial bottomfish catch farther offshore (Moore, Brusher and Trent 1970)
<u>Oligoplitea saurus</u> (Bloch and Schneider) Leatherjacket	Carnivore; predator on small fishes, invertebrates (Wagner 1973) (Hildebrand and Schroeder 1928) (Springer and Woodburn 1960)	Pelagic; adults normally in deeper areas farther offshore (Gunter 1945) young widespread	Moderately abundant; warm months (Perret, Berret, Latapie, Pollard, Mock, Adkins, Gaidry and White 1971) (Gunter 1945) as juveniles	None
<u>Selene vomer</u> (Linnaeus) Lookdown	Carnivore; predator on small crustaceans, fish (Hildebrand and Schroeder 1928)	Pelagic; adults mainly in deeper areas; often near oil rigs (Walls 1975)	Adults sparse; young moderately abundant during summer (Conner Unpubl.)	None
<u>Trachinotus carolinus</u> (Linnaeus) Florida Pompano	Carnivore; predator/grazer on fishes, benthic invertebrates (Springer and Woodburn 1960) (Hildebrand and Schroeder 1928)	Pelagic; adults mainly in deeper areas; sometimes around oil rigs; young often move into shore areas (Springer and Woodburn 1960) (Walls 1975) (Conner Unpubl.)	Sparse as adults; locally abundant as young (shore zones, warm months) (Bellinger and Avault 1971)	Limited value as gamefish

continued

Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Trachinotus falcatus</u> (Linnaeus) Permit	Carnivore; mainly on benthic invertebrates (Springer and Woodburn 1960) (Hildebrand and Schroeder 1928)	Pelagic; adults mainly in deeper areas (Walls 1975)	Sparse as adults; juveniles occur along beaches in autumn (Sabins 1973) (Tarbox 1974) (Conner Unpubl.)	None
<u>Vomer setapinnis</u> (Mitchill) Atlantic	Carnivore; predator chiefly on fishes (Hildebrand and Schroeder 1928)	Pelagic; widespread adults mainly in deeper areas (Walls 1975)	Moderately abundant, especially as juveniles in warm months (Conner Unpubl.)	None
FAMILY CORYPHAENIDAE DOLPHINS				
<u>Coryphaena hippurus</u> Linnaeus Dolphin	Carnivore; predator on fish, macroinvertebrates	Pelagic; adults mainly in deeper areas farther offshore; larvae occasionally washed into nearshore area (Conner Unpubl.)	Rare; sometimes moving into shallow areas (Conner Unpubl.)	Limited value as gamefish
FAMILY LUTJANIDAE SNAPPERS				
<u>Lutjanus griseus</u> (Linnaeus) Gray Snapper	Carnivore; predator on fishes, macroinvertebrates (Springer and Woodburn 1960) (Longley and Hildebrand 1941)	Demersal; mainly over reefs and near pilings, jetties, wrecks, oil rigs	Rare; young occasionally move near shore and to bays (Conner Unpubl.)	Limited value as gamefish (mainly farther offshore)
<u>Lutjanus synagris</u> (Linnaeus) Lane Snapper	Same as gray snapper	Demersal; mainly in deeper areas farther offshore; over reefs and near pilings, wrecks, rigs	Rare; young occasionally move into shallow areas (Conner Unpubl.)	Same as gray snapper

continued

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY LOBOTIDAE TRIPLETAILS				
<u>Lobotes surinamensis</u> (Bloch)		Pelagic; mainly near pilings, jetties, oil rigs, buoys, wrecks	Sparse; solitary as adults, young often found near shore (Conner Unpubl.)	Limited value as gamefish
Tripletail				
FAMILY GERREIDAE MOJARRAS				
<u>Eucinostomus argenteus</u> Baird and Girard	Carnivore; predator/ grazer on benthic invertebrates (Springer and Woodburn 1960) - forage species	Pelagic; widespread; young along beach (Conner Unpubl.)	Locally abundant as young along beach in warm months (Conner Unpubl.)	None
Spotfin Mojarra				
FAMILY POMADASYIDAE GRUNTS				
<u>Conodon nobilis</u> (Linnaeus)		Demersal; mainly in deeper marginal areas (Springer and Bullis 1956) (Conner Unpubl.)	Rare; occasionally taken in shrimp trawls (Conner Unpubl.)	None
Barred Grunt				
<u>Orthopristis chrysoptera</u> (Linnaeus)	Carnivore; predator/ grazer on benthic invertebrates (Springer and Woodburn 1960) (Hildebrand and Schroeder 1928)	Demersal; widespread in near shore Gulf (Walls 1975) (Conner Unpubl.) (Springer and Bullis 1956)	Abundant; mainly during colder months (Conner Unpubl.)	None
Pigfish				
FAMILY SPARIDAE FORGIES				
<u>Archosargus probatocephalus</u> (Walbaum)	Omnivore; grazer/ predator on periphyton, macroinvertebrates (especially barnacles, hermit crabs) (Hildebrand and Cable 1938) (Carsen 1944) (Pullen 1962) (Hildebrand Schroeder 1928)	Pelagic; adults associated with pilings, jetties, wrecks, oil rigs, young mainly in inland areas (Hildebrand and Cable 1938) (Conner Unpubl.)	Moderately abundant as adults; see habitat entry (Conner Unpubl.)	Popular gamefish; minor value as commercial fish
Sheepshead				

continued

	Tropic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Labodon rhomboides</u> (Linnaeus)	Omnivore; predator/ grazer on fishes, detritus, invertebrates, algae (Hildebrand and Schroeder 1928) - forage fish	Demersal; widespread (Walls 1975) (Gunter 1945) (Gunter 1938)	Abundant often taken by trawls, seines, hook and line (1) (Conner Unpubl.)	Limited value as gamefish; general- ly required a nuisance by anglers
<u>Stenotomus caprinus</u> (Bean)	Carnivore; predator on small fishes, benthic invertebrates (inferred from data on Atlantic congener) (Hildebrand & Schroeder 1928)	Demersal; mainly in deeper areas farther offshore (Moore, Brusher and Trent 1970) (Gunter 1945) (Gunter 1938) (Walls 1975)	Sparse; see habitat entry	Approx. 5% of win- ter industrial bottomfish catch; much more impor- tant farther off- shore, year-round (Moore, Brusher & Trent 1970)
<b>FAMILY SCIAENIDAE</b> <b>DRUMS</b>				
<u>Bairdiella chrysura</u> (Lacepede)	Carnivore; adults predatory on small fishes, shrimps; young feed on zooplankton (Springer and Woodburn, 1960) (Darnell 1958)	Demersal; mainly in inland areas (Gunter 1945)	Moderately abundant during winter (Gunter 1945)	Minor component of industrial bottomfish catch (Moore, Brusher, and Trent 1970)
<u>Silver Perch</u>				
<u>Cynoscion arenarius</u> (Ginsburg)	Carnivore; predator on fishes, macroinvertebrates (Darnell 1958) (Springer and Woodburn 1960) (Reid, Ingalls, and Hoese 1956) (Hildebrand 1954)	Demersal; widespread; mainly in inland areas except during cold months (Gunter 1945) (Norden 1966) (Gunter 1938)	Moderately abundant during cold months; see habitat entry	Approx. 6 - 8% of industrial bottom- fish catch in spring and summer (Moore, Brusher and Trent 1970)
<u>Sand Seatrout</u>				
<u>Cynoscion nebulosus</u> (Cuvier)				
<u>Spotted Seatrout</u>				
<u>Cynoscion nothus</u> (Holbrook)	carnivore; predator on fishes, macro- invertebrates	Demersal; mainly in deeper areas farther offshore (Moore, Brusher & Trent 1970) (Gunter 1938) Eggs and larvae planktonic; juveniles demersal; mainly in deeper areas farther offshore but occasionally entering nearshore Gulf (Hoese 1965)	Sparse; see habitat entry	Minor component of industrial bottom- fish catch farther offshore (Moore, Brusher & Trent 1970); popular gamefish farther offshore
<u>Silver Seatrout - Adults</u>				
<u>Silver Seatrout - Young</u>				None

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Larimus fasciatus</u> (Holbrook)				
Banded Drum	Omnivore; primarily carnivorous, grazer on benthic invertebrates, detritus (Springer and Woodburn 1960) (Hildebrand and Schroeder 1928)	Demersal; widespread but mainly in deeper areas farther offshore (Hildebrand and Cable 1934) (Gunter 1941)	Sparse; occasionally taken in shrimp trawls (Conner Unpubl.)	None
<u>Leiostomus xanthurus</u> (Lacepede)				
Spot - Adults	Omnivore; primarily carnivorous; predatory on zooplankton; grazer on detritus (Darnell 1958) (Springer and Woodburn 1960)	Demersal; widespread; moving offshore in fall (Moore, Busher, and Trent 1970) (Pearson 1929)	Moderately abundant, mainly in spring and summer (Moore, Busher, and Trent 1970)	Approx. 5 - 7% of industrial bottom-fish catch in spring and summer (Moore, Busher, 6 Trent 1970), moderately valuable as gamefish
Spot - Young	Omnivore; primarily carnivorous; predatory on zooplankton; grazer on detritus (Darnell 1958) (Springer and Woodburn 1960)	Eggs and larvae planktonic; juveniles demersal (Conner Unpubl.) Eggs and larvae widespread seasonally (Conner Unpubl.); juveniles mainly in inland areas (Parker 1971)	Moderately abundant, late fall to early spring (Gunter 1945) (Tarbox 1974)	None
<u>Menticirrhus americanus</u> (Linnaeus)				
Southern Kingfish - Adults	Carnivore; predator/grazer on benthic invertebrates (Springer and Woodburn 1960) (Hildebrand and Schroeder 1928) (Miles 1949)	Demersal; widespread (Gunter 1945)	Moderately abundant; especially during summer and fall (Gunter 1945) (Conner Unpubl.)	Approx. 7% of winter industrial bottomfish catch (Moore, Busher and Trent 1970); minor value as gamefish
Southern Kingfish - Young	Carnivore; bottom-feeders in very shallow areas (Springer and Woodburn 1960) -forage species	Demersal; mainly along beaches (Springer and Woodburn 1960)	Abundant; mainly along beaches in summer, fall (Conner Unpubl.)	None
<u>Menticirrhus littoralis</u> (Holbrook)	See above species (Springer and Woodburn 1960) (Hildebrand and Schroeder 1928) (Gunter 1945)	Demersal, mainly along beaches (Gunter 1945)	Moderately abundant, especially during summer (Conner Unpubl.)	Limited value as gamefish
Gulf Kingfish				
<u>Microgogon undulatus</u> (Linnaeus)				
Atlantic Croaker				

continued

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Pogonias cromis</u> (Linnaeus)	Carnivore; predator/ grazer on benthic invertebrates, especially bivalve mollusks (e.g. <i>Mulinia</i> (Pearson 1929) (Hildebrand and Schroeder 1928))	Demersal; widespread, but mainly in inland areas (Gunter 1945)	Sparse; mainly in inland areas except during offshore spawning migration (winter) (Gunter 1945)	Limited value as gamefish; (more important as both game and commercial fish in inland areas)
Black Drum - Adults				
Black Drum - Young	Carnivore; predator/ grazer on small benthic invertebrates; mainly polychaetes, crustaceans (Darnell 1958)	Larvae planktonic, widespread (Conner Unpubl.) Post larvae and juveniles in inland areas (Gunter 1945) (Springer and Bullis 1956)	Moderately abundant, late winter and spring (Sabins 1973) (Hose 1965) (Pearson 1929)	None
<u>Sciaenops ocellata</u> (Linnaeus)				
Red Drum				
<u>Stellifer lanceolatus</u> (Holbrook)		Demersal; mainly in deeper areas (Conner Unpubl.)	Sparse; mainly in deeper areas (Conner Unpubl.)	Minor component of industrial bottom-fish catch farther offshore (Moore, Bushner, and Trent 1970)
Star Drum				
FAMILY EPHIPPIDAE SPADEFISHES,				
Chaetodipterus Faber (Broussonet)	Omnivore; grazer on attached algae, fouling invertebrates (Hildebrand and Schroeder 1928) (Smith 1907)	Pelagic; mainly associated with pilings, jetties, wrecks, rigs (Gunter 1945) (Conner Unpubl.)	Locally abundant; see habitat entry (Conner Unpubl.)	Limited value as gamefish
Atlantic Spadefish - Adults				
Atlantic Spadefish - Young		Pelagic; as very young tend to concentrate along beaches (Conner Unpubl.)	Abundant along beaches in summer (Conner Unpubl.)	None

continued

# Appendix 6.3(30). Continued.

		<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY MUGILIDAE					
MULETS					
<u>Mugil cephalus</u> Linnaeus		Omnivore; predominantly herbivorous (Odum 1970) (Hildebrand and Schroeder 1928) - forage species	Pelagic; widespread (Gunter 1945) (Gunter 1938)	Abundant (Conner Unpubl.) (Gunter 1938)	Minor importance as bait fish
Striped Mullet - Adults					
Striped Mullet - Young		Omnivore; predominantly herbivorous as juveniles (Darnell 1958)	larvae planktonic, wide-spread (Conner Unpubl.); juveniles mainly in inland areas (Conner Unpubl.) (Gunter 1945) (Gunter 1938)	Moderately abundant, December through April (Conner Unpubl.)	None
<u>Mugil curema</u> Valenciennes		See striped mullet entry (Hildebrand and Schroeder 1928)	Pelagic; widespread (Gunter 1945) (Gunter 1938)	Moderately abundant during summer (Conner Unpubl.)	Minor importance as bait fish
White Mullet - Adults					
White Mullet - Young		See striped mullet entry	Larvae planktonic, wide-spread (Conner Unpubl.) juveniles mainly in inland areas (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Moderately abundant; mainly along beaches during summer (Conner Unpubl.)	None
SPHYRAENIDAE					
BARRACUDAS					
<u>Sphyræna barracuda</u> (Walbaum)		Carnivore; predator/scavenger on fishes, macroinvertebrates (Day, Smith, Wagner and Stowe 1973)	Pelagic; mainly in deeper areas and associated with wrecks, rigs, jetties (Conner Unpubl.)	Sparse; mainly in deeper areas	Limited value as gamefish
Great Barracuda					
FAMILY POLYNEMIDAE					
THREADFINS					
<u>Polydactylus octonemus</u> (Girard)		Carnivore; predator on small fishes, invertebrates (Conner Unpubl.) - forage species	Pelagic; widespread (Gunter 1945) (Gunter 1938)	Abundant during warm months (Conner Unpubl.)	None
Atlantic Threadfin					

continued

Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative Abundance</u>	<u>Economic Importance</u>
FAMILY URANOSCOPIDAE STARGAZERS				
<u>Astroscopus</u> <u>gracum</u> (Cuvier)	Carnivore; predator on fishes, invertebrates (Springer and Woodburn 1960) (Dahlgren 1972)	Demersal; mainly along sandy shore areas (Gunter 1945) (Gunter 1938)	Sparse; occasionally taken in trawls, seines (Conner Unpubl.)	None
Southern Stargazer				
FAMILY BLENNIIDAE COMETOOTH BLENNIES				
<u>Chasmodes</u> <u>bosquianus</u> (Lacepede)	Carnivore; predator on benthic invertebrates (inferred from data on eastern Gulf congener) (Springer and Woodburn 1960)	Demersal; mainly associated with reefs, jetties (Conner Unpubl.)	Very rare; cryptic; occasionally taken in trawls (Conner Unpubl.)	None
Striped Benny				
<u>Hypsoblennius</u> <u>hertzii</u> (LeSueur)	Omnivore; grazer on hydroids, plants, polychaetes, crustaceans (Springer and Woodburn 1960)	Demersal; mainly associated with muddy reefs (Walls 1975)	Sparse; cryptic; occasionally taken in trawls, seines (Conner Unpubl.)	None
Feather Blenny				
<u>Hypsoblennius</u> <u>ionthas</u> (Jordan and Gilbert)		Demersal; mainly associated with reefs (Walls 1975)	Very rare; cryptic; rarely taken in trawls, seines (Conner Unpubl.)	None
Freckled Blenny				
FAMILY COBIIDAE GOBIES				
<u>Bollmannia</u> <u>communis</u> Ginsburg		Demersal; mainly in deeper areas farther offshore (Dawson 1969)	Sparse; occasionally taken in shrimp trawls (Conner Unpubl.)	None
Ragged Goby				
<u>Cobioides</u> <u>broussonneti</u> Lacepede		Demersal; widespread but uncommon (Dawson 1969)	Rare; occasionally taken in shrimp trawls (Conner Unpubl.)	None
Violet Goby				

continued

# Appendix 6.3(30). Continued.

	Trophic Relations	Local Distribution	Relative Abundance	Economic Importance
<u>Gobionellus boleosoma</u> (Jordan and Gilbert)				
Darter Goby		Demersal; mainly in inland areas and near passes (Dawson 1969) (Conner Unpubl.)	Rare; occasionally taken in seines (Conner Unpubl.)	None
<u>Gobionellus hastatus</u> Girard	Omnivore; grazer on algae, benthic invertebrates (Springer and Woodburn 1960)	Demersal; mainly in inland areas (Dawson 1969)	Rare; occasionally taken in trawls (Conner Unpubl.)	None
Sharptail Goby				
<u>Gobiosoma boscii</u> (Lacepede)	Carnivore; predator/scavenger on benthic invertebrates, carrion (Hildebrand and Schroeder 1928) (Hoesel and Hoesel 1967)	Demersal; mainly associated with jetties, reefs (Conner Unpubl.)	Rare; occasionally taken in seines (Conner Unpubl.)	None
Naked Goby				
FAMILY MICRODESIMIDAE WORMFISHES				
<u>Microdesmus longipinnis</u> (Weymouth)		Demersal; burrowing form in sand, mud substrates (Dawson 1969)	Rare; occasionally taken in seines, trawls (Conner Unpubl.)	None
Pink Wormfish				
FAMILY TRICHIURIDAE CUTLASSFISHES				
<u>Trichiurus lepturus</u> Linnaeus	Carnivore; predator mainly on fishes (Hildebrand and Schroeder 1928) (Day, Smith, Wagner and Stowe 1971)	Demersal; widespread (Gunter 1945) (Gunter 1938)	Abundant; especially during warm months (Conner Unpubl.) (Gunter 1938)	Approx. 5% of industrial bottomfish catch (Moore, Brushe: and Trent 1970); spring and summer
Atlantic Cutlassfish				
FAMILY SCOMBRIDAE MACKERELS AND TUNAS				
<u>Scomberomorus maculatus</u> (Mitchill)	Carnivore; predator mainly on fishes (Klima 1959)	Pelagic; adults mainly in deeper areas but moving nearshore at times; young widespread (Gunter 1945) (Gunter 1938)	Adults sparse; see habitat entry; young abundant along beaches in summer (Gunter 1938) (Conner Unpubl.)	Limited value as game, sh
Spanish Mackerel				

continued

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY STROMATEIDAE BUTTERFISHES				
<u>Peprilus alepidotus</u> (Linnaeus)	Carnivore; predator on small fishes, invertebrates (Hildebrand and Schroeder 1928)	Pelagic; widespread (Gunter 1945) (Gunter 1938)	Moderately abundant during warm months; (Conner Unpubl.)	None
Harvestfish				
<u>Peprilus burti</u> Fowler	Carnivore; predator on small fishes, invertebrates (Hildebrand and Schroeder 1928)	Demersal; mainly in deeper areas as adults; young widespread in nearshore area (Gunter 1945) (Gunter 1938)	Moderately abundant during warm months (Conner Unpubl.)	Minor component of industrial bottom-fish catch farther offshore (Moore, Brushner and Trent 1970)
Gulf Butterfish				
FAMILY SCORPAENIDAE SCORPIONFISHES				
<u>Scorpaena calcarata</u> Goode and Bean		Demersal; mainly in deeper areas and around reefs, jetties, wrecks (Gunter 1948)	Rare; occasionally taken in trawls (Conner Unpubl.)	None
Smoothhead Scorpionfish				
FAMILY TRICHIDAE SEAROBINS				
<u>Prionotus martis</u> Ginsburg		Demersal; mainly in deeper areas farther offshore (Ginsburg 1950)	Rare; occasionally taken in trawls (Conner Unpubl.)	None
Barred Searobin				
<u>Prionotus rubio</u> Jordan		Demersal; mainly in deeper areas farther offshore (Gunter 1945) (Moore, B Brushner and Trent 1970) (Gunter 1938) (Ginsburg 1950)	Sparse; see habitat entry	Minor component of industrial bottom-fish catch (Moore, Brushner and Trent 1970) farther offshore
Blackfin Searobin				
<u>Prionotus scitulus</u> Jordan and Gilbert	Carnivore; primarily of crustaceans, annelids (Springer and Woodburn 1960)	Demersal; widespread (Walls 1975) (Ginsburg 1950)	Moderately abundant in shrimp trawls (Conner Unpubl.)	None
Leopard Searobin				
<u>Prionotus tribulus</u> Cuvier		Demersal; mainly in inland areas (Walls 1975) (Ginsburg 1950)	Moderately abundant in shrimp trawls except coldest months (Conner Unpubl.)	None
Bighead Searobin				

continued

Appendix 6.3(30). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY BOTHIDAE LEFTEYE FLOUNDERS				
<u>Ancylorhæta quadrociliata</u> Gill	Carnivore; predator on small crustaceans and fishes (Topp and Hoff 1972)	Demersal; widespread (Topp and Hoff 1972) (Gunter 1945) (Gunter 1938)	Sparse; occasionally taken in trawls (Conner Unpubl.)	None
Ocellated Flounder				
<u>Citharichthys macrops</u> Dresel	Carnivore; predator on small crustaceans (Topp and Hoff 1972)	Demersal; preferring bottoms of sand (Topp and Hoff 1972) (Hildebrand 1954)	Sparse; occasionally taken in trawls (Conner Unpubl.)	None
Spotted Whiff				
<u>Citharichthys spilopterus</u> Gunther		Demersal; widespread (Topp and Hoff 1972) (Hoesse 1958) (Gunter 1945) (Gunter 1938)	Abundant; often taken in trawls (Conner Unpubl.)	None
Bay Whiff				
<u>Etropus crossotus</u> Jordan and Gilbert	Carnivore; predator mainly on polychaetes and crustaceans (Topp and Hoff 1972) (Reid 1954)	Demersal; widespread, preferring bottoms of mud, detritus (Topp and Hoff 1972) (Gunter 1945) (Gunter 1938)	Moderately abundant; often taken in trawls (Conner Unpubl.)	None
Fringed Flounder				
<u>Paralichthys albigutta</u> Jordan and Gilbert	Carnivore; predator; young mainly on crustaceans, adults mainly on fishes (Topp and Hoff 1972)	Demersal; preferring sand substrates (Topp and Hoff 1972) (Hoesse 1958)	Sparse; occasionally taken in trawls, by hook and line (Conner Unpubl.)	Limited value as game fish
Gulf Flounder				
<u>Paralichthys lethostigma</u> Jordan and Gilbert				
Southern Flounder				
<u>Paralichthys squamilentus</u> Jordan and Gilbert		Demersal; adults in deeper offshore areas but young occasionally enter near-shore areas (Walls 1975) (Hoesse 1958)	Very rare (Conner Unpubl.)	None
Broad Flounder				
<u>Syacium gunteri</u> Ginsburg		Demersal; mainly in deeper areas farther offshore (Walls 1975) (Springer and Bulls 1956)	Sparse; occasionally taken by shrimp trawls (Conner Unpubl.)	Minor component of industrial bottom-fish catch farther offshore (Moore 1970)
Shoal Flounder				

continued

# Appendix 6.3(30). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY SOLEIDAE SOLES				
<u>Achirus lineatus</u> (Linnaeus)		Demersal; widespread; (Gunter 1945) (Gunter 1938) (Hoes 1958)	Abundant; especially in warm months (Conner Unpubl.)	None
Lined Sole				
<u>Gymnachirus lexae</u> Gunter		Demersal; mainly in deeper offshore areas (Walls 1975) (Gunter 1938) (Dawson 1964)	Sparse; occasionally taken in trawls (Conner Unpubl.)	None
Fringed Sole				
<u>Trinectes maculatus</u> (Bloch and Schneider)		Demersal; widespread (Walls 1975) (Gunter 1945) (Gunter 1938) (Hoes 1958) (Springer and Bulls 1956)	Abundant, often taken in trawls	None
Hogchoker				
FAMILY CYNOGLOSSIDAE TONGUEFISHES				
<u>Symphurus diomedianus</u> (Goode and Bean)	Carnivore; predator on benthic invertebrates, mainly crustaceans, polychaetes, gastropods (Topp and Hoff 1972)	Demersal; usually in deeper areas and preferring sand bottoms (Topp and Hoff 1972) (Walls 1975)	Very rare	None
Spottedfin Tonguefish				
<u>Symphurus parvus</u> Ginsburg		Demersal; usually in deeper areas farther offshore (Ginsburg 1951)	Very rare	None
Pygmy Tonguefish				
<u>Symphurus plagiusa</u> (Linnaeus)	Carnivore; predator on benthic invertebrates (Topp and Hoff 1972) (Reid 1954) (Springer and Woodburn 1960)	Demersal; widespread; (Walls 1975) (Ginsburg 1951) (Gunter 1945) (Gunter 1938)	Abundant; often taken in trawls, seinea (Conner Unpubl.) (Tarbox 1974)	None
Blackcheek Tonguefish				
FAMILY BALISTIDAE TRIGGERFISHES AND FILEFISHES				
<u>Aleuterus schoepfi</u> (Walbaum)		Pelagic; young associated with sargassum mats; also along beaches and in inland areas (Berry and Vogele 1961) (Walls 1975)	Rare; occasionally taken in seines, dipnets with sargassum (Conner Unpubl.)	None
Orange Filefish				

continued

Appendix 6.3(30). Concluded.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Aleuterus scriptus</u> (Osbeck)		ditto	ditto	None
Scrawled Filefish				
<u>Monacanthus lispidus</u> (Linnaeus)	Carnivore; grazer on benthic invertebrates, fouling invertebrates (Springer and Woodburn 1960) (Reid 1954)	ditto	ditto	None
Planehead Filefish				
FAMILY OSTRACIIDAE BOXFISHES				
<u>Lactophrys quadricornis</u> (Linnaeus)		Pelagic; often near pilings, rigs, jetties (Conner Unpubl.)	Rare; occasionally taken in beach seines (Conner Unpubl.)	None
Scrawled Cowfish				
FAMILY TETRAODONTIDAE PUFFERS				
<u>Lagocephalus laevigatus</u> (Linnaeus)		Pelagic, widespread (Shipp 1974)	Rare; occasionally appearing in summer (Conner Unpubl.)	None
Smooth Puffer	- forage species			
<u>Sphoeroides parvus</u> Shipp and Verger		Pelagic; widespread (Gunter 1938) (Shipp 1974)	Moderately abundant; mainly during warm months (Conner Unpubl.)	None
Least Puffer	- forage species			
FAMILY DIODONTIDAE PORCUPINEFISHES				
<u>Chilomycterus achoepfi</u> (Walbaum)		Pelagic; widespread (Walls 1975) (Gunter 1945) (Gunter 1938) (Springer and Bullis 1956)	Moderately abundant; often taken by trawls, seines; mainly in warm months (Conner Unpubl.)	None
Striped Burrfish				
<u>Diodon hystrix</u> Linnaeus		Pelagic; a tropical form usually not present, locally (Walls 1975) (Hoesse 1958) (Springer and Bullis 1956)	Very rare	None
Porcupinefish				

Appendix 6.3(31). Phytoplankton species found in  
inshore open waters in southeastern Louisiana  
(Day et al. 1976)

Taxa	Characteristic Salinity Range		
	Saline	Brackish	Fresh
COCCOID BLUE-GREEN			
<u>Microcystis</u> sp.			X
FILAMENTOUS BLUE-GREEN			
<u>Anabaena</u> sp.	X		X
<u>Gomphosphaeria</u> sp.			X
<u>Merismopedia</u> sp.	X		X
<u>M. elegans</u>			X
<u>Oscillatoria</u> sp.	X		X
<u>Spirulina</u> sp.			X
<u>Gleocapsa</u> sp.	X		
COCCOID GREEN			
<u>Chlorella</u> sp.	X	X	X
<u>Tetraedron trigonium</u>			X
FLAGELLATED GREEN			
<u>Chlamydomonas</u> sp.	X	X	X
CENTRIC DIATOMS			
<u>Coscinodiscus</u> sp.	X		
<u>C. radiatus</u>	X		
<u>Cyclotella</u> sp.	X		
<u>C. meneghiniana</u>			X
PENNATE DIATOMS			
<u>Amphora</u> sp.	X	X	
<u>Cocconeis placentula</u>		X	
<u>Epithemia argus</u>			X
<u>Fragilaria</u> sp.		X	

continued

Species	Saline	Brackish	Fresh
<u>Gomphenema</u> sp.			X
<u>Gyrosigma</u> <u>peisonis</u>		X	
<u>Navicula</u> sp.	X	X	X
<u>Hantzschia</u> sp.			X
<u>Nitzschia</u> <u>closterium</u>	X	X	X
<u>Pinnularia</u> <u>biceps</u>			X
<u>P.</u> <u>viridis</u>		X	
<u>Synedia</u> sp.		X	
OTHER DIATOMS			
<u>Actmorphycus</u> sp.	X		
<u>Biddulphia</u> sp.	X		
<u>Chaetocerus</u> sp.	X		
<u>Cylindrotheca</u> <u>closterium</u>	X		
<u>Niloschis</u> <u>pungens</u>	X		
<u>Rhizosolemia</u> sp.	X		
<u>Skeletonema</u> sp.	X		
<u>Thalassionema</u> sp.	X		
DINOFLAGELLATES			
<u>Ceratium</u> <u>fuscus</u>	X		
<u>C.</u> <u>hirans</u>	X		
<u>C.</u> <u>trichocerus</u>	X		
<u>C.</u> <u>tripos</u>	X		
<u>C.</u> <u>vultur</u>	X		
<u>Peridinium</u> sp.		X	X
<u>Procontrum</u> <u>gracile</u>	X		
<u>Gonyaulax</u> <u>monilata</u>	X		
<u>Dinophysis</u> <u>candata</u>	X		
EUGLENOIDS			
<u>Euglena</u> sp.			X
<u>Phacus</u> sp.			X
<u>Trachelomonas</u> sp.			X

continued

Appendix 6.3(31). Concluded.

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Species	Saline	Brackish	Fresh
OTHERS			
<u>Scenedesmus quadricauda</u>			X
<u>Chara</u> sp.			X

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Appendix 6.3(32). Components of the zooplankton recorded for  
Louisiana Inland Open Water Habitat.

Brackish water

Zooplankton: (from Bouchard and Turner 1976, Lafourche Parish; Denoux, 1976,  
Calcasieu estuary)

Protozoa

Coelenterata

Ctenophora

Rotifera

Nematoda

Mollusca

Gastropoda (larvae)

Pelecypoda (larvae)

Annelida

Polychaeta

Nereidae

Nereis succinea

Nearthes succinia

Oligochaeta

Hirudinea

Arthropoda

Crustacea

Cladocera (water fleas)

Alona sp.

Ostracoda

Copepoda

Calanoida (from Denoux, 1976, Calcasieu estuary)

Calanidae

Eucalanus pileatus

Rhincalanus cornutus

Paracalanidae

Paracalanus aculeatus

Paracalanus crassirostris

Centropagidae

Centropages hamatus

Centropages velificatus

Osphranticum labronectum

Diaptomidae

Diaptomus dorsalis

D. reighardi

D. siciloides

D. signicauda

Diaptomus sp.

continued

Temoridae  
    Eurytemora affinis  
    Temora turbinata  
Pontellidae  
    Labidocera aestiva  
Acartiidae  
    Acartia lilljeborgi  
    Acartia tonsa  
Cyclopoida  
    Cyclops vernalis  
    Cyclops panamensis  
    Eucyclops sp.  
    Oithona sp.  
    Onaea mediterranea  
    Onaea conifera  
    Saphirella sp.  
Harpacticoida  
    Macrosetella sp.  
Caligoida  
    Ergasilus sp.  
Branchiura  
    Argulus sp. (parasitic copepod)  
Cirripedia  
    Nauplii  
    Cypris larvae  
Malacostraca  
    Amphipoda  
    Isopoda  
    Mysidacea  
    Decapoda (larvae)  
    Penaeidae (shrimps)  
    Astacidae  
        Procambarus clarkii (zoea)  
  
Arachnidae  
  
Insecta  
    Coleoptera (larvae)  
  
Chaetognaths (arrow worms)  
    Sagitta sp.  
  
Chordata urochordata (tunicate larvae)  
    Urochordata (tunicate larvae)  
  
Vertebrata (fish larvae)

continued

Fresh water: (mainly from Bouchard and Tuner 1976, Lafourche Parish)

- I. Protozoa
- II. Coelenterata
  - Hydrozoa
- III. Ctenophora
- IV. Rotifera
- V. Nematoda
- VI. Mollusca
  - Pelecypoda (larvae)
  - Gastropoda
    - Laevapex sp.
    - Physa sp.
- VII. Annelida
  - Hirudinea
  - Oligochaeta
- VIII. Arthropoda
  - Crustacea
    - Cladocera
      - Alona sp.
      - Bosmina longirostris
      - Ceriodaphnia lacustris
      - C. laticaudata
      - C. reticulata
      - C. rigaudi
      - Pseudochydoras globosus
      - Chydorus sphaericus
      - Dadaya macrops
      - Daphnia ambigua
      - D. laevis
      - D. parvula
      - Diaphanosoma branchyurum
      - Eubosmina tubocin
      - Diaphanosoma lichtenbergianum
      - Euryalona occidentalis
      - Ilyocryptus spinifer
      - I. sordidus
      - Kurzia latissima
      - Latinopsis fasciculata
      - L. occidentalis
      - Leydigia acanthoceroides
      - L. quadrangularis
      - Macrothrix laticornis
      - Moina micrura

continued

Appendix 6.3(32). Continued

- Moinodaphnia macleayii
- M. sp.
- Scaphelebris kingi
- Simocephalas expinosus
- S. vetulus
- Macrothrix rosea
- Ostracoda
- Copepoda
  - Calanoida (from Denoux 1976)
    - Acartia tonsa
    - Diaptomus dorsalis
    - D. reighardi
    - D. siciloides
    - Eurytemora affinis
    - Osphranticum labronectum
  - Cyclopoida
    - Cyclops nearcticus
    - C. panamensis
    - C. rubellus
    - C. thomasi
    - C. vernalis
    - Ectocyclops phaleratus
    - Eucyclops agilis
    - E. speratus
    - Halicyclops sp.
    - Macrocyclops albidus
    - M. ater
    - Mesocyclops edax
    - M. inversus
    - M. longisetus
    - Orthocyclops modestus
    - Paracyclops poppei
    - Tropocyclops prasinus
  - Harpacticoida
  - Caligoida
    - Caligus sp.
    - Ergasilus sp.
  - Branchiura
    - Argulus sp. (parasitic copepod)
  - Malacostraca
    - Amphipoda
    - Decapoda
      - Penaeidae (shrimps)
      - Astacidae
        - Procambarus clarkii (zoea)
- Insecta
  - Coleoptera (larvae)
  - Diptera (larvae)

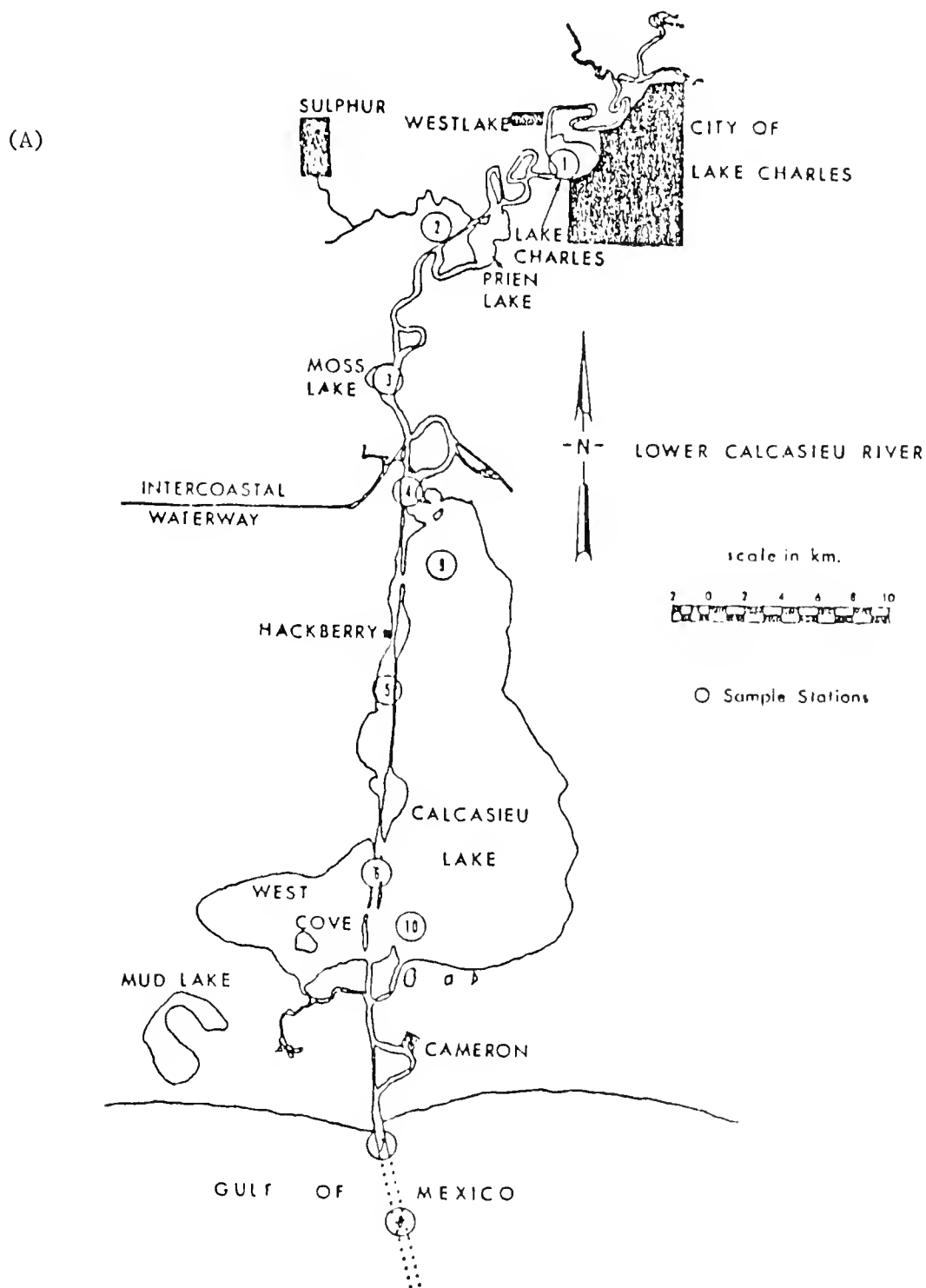
continued

Appendix 6.3(32). Concluded

Ephemeroptera (nymphs)  
Hemiptera  
Odonata (nymphs)  
Arachnida  
Chordata  
  
Vertebrata (fish larvae)

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Appendix 6.3(33). Representative brackish water macroinvertebrates collected from the Calcasieu estuary (Stickle et al. 1975). (A) Map of Calcasieu estuary showing sampling stations; (B) Taxonomic listing.



- (B) The following list includes macroinvertebrates (collected by all methods) that were retained within a 1.0 mm mesh seive. Phylum, class, family, genus and species are given, where known. The order category is used only with the Phylum Arthropoda. The list is preliminary in nature in that many specimens have not yet been identified and others have not yet been verified.

Porifera

Demospongiae

Clionidae

Cliona sp. (Boring sponges)

Coelenterata

Hydrozoa

Hydractiniidae

Hydractinia sp. (Marine hydroids)

Siphonophora

Physaliidae

Physalia physalis (Portugese man-of-war)

Scyphozoa

Rhizostomae (Jellyfish)

Stomolophus meleagris

Anthozoa (Corals and sea anemones)

Astraeidae

Astrangia solitaria

Actinostolidae

Paranthus rapiformis

Aiptasiomorphidae

Aiptasia pallida

Ctenophora

Tentaculata

Mnemiidae

Mnemiopsis mccradyi

Nuda

Beroidae

Bero ovata

Platyhelminthes

Several species of flatworms have been collected

Rhynchocoela

Hoploneurmertea

Carcinonemertidae

Carcinomertes cf. tremaphoros

Heteronemertea

Lineidae

Cerebratulus lacteus

continued

Appendix 6.3(33). Continued

Ectoprocta

Gymnolaemata

Membraniporidae

Membranipora sp. (Colonial encrusting bryozoans)

Bugulidae

Bugula sp.

Annelida

Polychaeta

Phyllodocidae

Phyllodoce fragilis

Nereidae

Neanthes succinea

Spionidae

Polydora websteri

Spio sp.

Onuphidae

Diopatra cuprea

Eunicidae

Marphysa sanguinea

Eunice sp.

Serpulidae

Hydroides dianthus

Pilargidae

Loandalia american faureli

Hirudinea (Leeches)

Ichthyobdellidae

Myzobdella sp.

Arthropoda

Crustacea

Cirripedia

Balanidae

Balanus eburneus

B. improvisus

B. amphitrite

Chelonibia testudinaria

Stomatopoda

Squillidae

Squilla empusa

Tanaidacea

Several species have been collected.

continued

Appendix 6.3(33). Continued

Isopoda

Cymothoidea

Lironeca ovalis

Aegathoa oculata

Amphipoda

Several species have been collected.

Decapoda

Penaeidae

Penaeus setiferus (White shrimp)

P. aztecus aztecus (Brown shrimp)

P. duorarum (Pink shrimp)

Trachypenaeus similis

Sicyonia dorsalis

Xiphopenaeus kroyeri

Sergestidae

Acetes americanus

Crustacea

Decapoda

Palaemonidae (Prawns)

Palaemonetes vulgaris

P. intermedius

P. pugio

Macrobrachium ohione (Freshwater prawn)

Ogyrididae

Ogyrides limicola

Alpheidae

Alpheus heterochaelis

Callianassidae

Gourretia latispina

Callianassa jamaicense

Diogenidae

Clibanarius vittatus

Paguridae

Pagurus pollicaris (Hermit crabs)

Portunidae

Callinectes sapidus

C. similis

Xanthidae

Panopeus herbstii (Mud crabs)

P. bermudensis

Hexapanopeus angustifrons

continued

H. paulensis  
Eurypanopeus depressus  
Rhithropanopeus harrisii  
Menippe mercenaria

Pinnotheridae (Oyster crabs)  
Pinnixia chacei

Insecta

Diptera

Chironomidae

Several species have been collected.

Mollusca

Gastropoda

Epitoniidae

Epitonium rupicola  
Epitonium sp.

Naticidae

Polinices duplicatus (Mollusk predator)

Columbellidae

Anachis obesa  
A. avara

Nassariidae

Nassarius vibex (Basket shell snail)  
N. acuta

Pyramidellidae

Littoridina sphinctosoma  
Odostomia gibbosa  
Odostomia cf. laevigata  
Odostomia sp.

Muricidae

Thais haemastoma (Oyster drill)

Pelecypoda

Mytilidae

Geukensia demissa  
Ischadium recurvum  
Amygdalum papyria

Ostreidae

Crassostrea virginica

Dreissenidae

Congeria leucopheata

Petricolidae

Petricola pholadiformis

continued

Mactridae

Spisula solidissima

Rangia cuneata

Mulinia lateralis

Tellinidae

Tellina texana

Macoma mitchelli

Solecurtidae

Tagelus plebius

Pholadidae

Barnea truncata

Diplothyra smithii

Terecinidae

Bankia gouldi

Cephalopoda

Loliginidae

Lolliguncula brevis

Echinodermata

Ophiuroidea

Amphiuridae

Hemipholas elongata

Appendix 6.3(34). Freshwater and brackish water benthic organisms  
in southeastern Louisiana Inland Open Water Habitat.

Freshwater macrobenthos (Thomas 1976, Lafourche Parish)

Arthropoda

Crustacea

Gammaridae (Amphipods)

Craugonyx sp.

Talitridae (Amphipods)

Hyalella azteca

Decapoda (red swamp crayfish)

Cambaridae

Procambarus clarkii

Cambarellus shufelatii

Orconectes lancifer

Isopoda

Cirripedia

Balanidae

Balanus sp.

Insecta (see freshwater meiobenthos)

Annelida

Hirudinea (leeches)

Hirudidae

Macrobdella ditetra

Glossiphoniidae

Placobdella sp.

Bryozoa

Phylactolaemata

Lophopodidae

Pectinatella magnifica

Mollusca

Gastropoda

Ancylidae (limpets)

Laevapex sp.

Lymnaeidae

Pseudosuccinea sp.

Viviparidae

Viviparus sp.

Bythinidae

Pomatopyrgus sp.

Physidae

Physa sp.

Planorbidae

Heliosoma sp.

Gyraulus sp.

continued

Appendix 6.3(34). Continued

Pelecypoda (bivalves)

Unionidae (clams)

Anodonta grandis

Anodonta imbecillis

Villosa lienosa

Sphaeriidae

Sphaerium sp. (fingernail clams)

Freshwater meiobenthos (Thomas 1976), Lafourche Parish)

Nematoda

Annelida

Mollusca

Gastropoda

Pelecypoda

Arthropoda

Crustacea

Amphipoda

Asellus sp.

Hyalella azteca

Isopoda

Copepoda

Ostracoda

Cladocera

Decapods

Insecta

Ephemeropter (mayflies)

Caenidae

Baetida

Odonata (dragonflies, damselflies)

Gomphidae

Aeschnidae

Libellulidae

Lestidae

Coenagrionidae (damselflies)

Hemiptera (true bugs)

Corixidae (water boatmen)

Notonectidae (back swimmers)

Pleidae (pigmy backswimmers)

Naucoridae (creeping water bugs)

Belostomatidae (giant water bugs)

Nepidae (water scorpions)

Gerridae (water striders)

Veliidae (ripple bugs)

Hydrometridae (marsh treaders)

Hebridae (velvet water bugs)

Mesoveliidae (water treaders)

Saldidae (shore bugs)

continued

- Coleoptera
  - Carabidae
  - Cicindellidae
  - Haliplidae (crawling water beetles)
  - Gyrinidae (whirligig beetles)
  - Noteridae
  - Dytiscidae (predaceous diving beetles)
  - Hydrophilidae (water scavenger beetles)
  - Helodidae
- Megaloptera
  - Corydalidae (dobsonflies and fishflies)
- Trichoptera (caddis flies)
  - Leptoceridae
  - Psychomyiidae
- Lepidoptera
  - Pyrallidae (aquatic caterpillars)
- Diptera
  - Tipulidae (crane flies)
  - Culicidae (mosquitoes and phantom midges)
  - Chironomidae (midges)
  - Ceratopogonidae (biting midges)
  - Stratiomyidae (soldier flies)
  - Ephydriidae (shore flies)
  - Tabanidae (horseflies)

Brackish water macrobenthos (Thomas 1976, Lafourche Parish)

Nematoda (roundworms)

Arthropoda

- Cumacea
- Crustacea
  - Decapods (decapod larvae)
  - Amphipoda (scuds, sideswimmers)
    - Corophium sp.
    - Ampileasca sp.
  - Copepoda
  - Tanidaceans
  - Ostracoda (seed shrimps)
  - Cladocera (water fleas)
- Arachnida (spiders, mites)
- Pycnogonida (sea spiders)
- Insecta
  - Diptera
    - Chironomidae (midge larvae)

continued

Appendix 6.3(34). Concluded.

Annelida

Polychaeta

Oligochaeta

Rotatoria (rotifers)

Gastrotricha

Ciliata

Sarcodina

Foraminifera

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Appendix 6.3(35). Representative vertebrates excluding fish, of the Inland Open Water Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Notopthalmus viridescens</u> Central newt			
<u>Amphiuma tridactylum</u> Three-toed amphiuma			
<u>Acris crepitans</u> Northern cricket frog			
<u>Rana catesbeiana</u> Bullfrog			
<u>Rana clamitans</u> Bronze frog			
<u>Rana grylio</u> Pig frog			
<u>Rana palustris</u> Pickerel frog			
<u>Rana sphenoccephala</u> Southern leopard frog			
<u>REPTILES</u>			
<u>Alligator mississippiensis</u> American alligator			Endangered - Tex. Threatened - La.
<u>Chelydra serpentina</u> Snapping turtle	fish (35.4%); other vertebrates (1.1%); carrion (19.6%); invertebrates (7.8%); vegetable matter (36.2%) (Carr 1952)		

continued

# Appendix 6.3(35). Continued.

<u>Species</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Food</u>	<u>Remarks</u>
<u>Macroclemys temminckii</u>		fish, frogs, snakes, other turtles, mussels, various aquatic grasses (Carr 1952)	
Alligator snapping turtle			
<u>Kinosternon subrubrum</u>		insects, small snails (Carr 1952)	
Mississippi mud turtle			
<u>Sternotherus carinatus</u>			
Razor-backed musk turtle			
<u>Sternotherus odoratus</u>			
(Stinkpot)			
<u>Chrysemys concinna</u>			
Mobile cooter			
<u>Chrysemys floridana</u>			
Missouri slider			
<u>Chrysemys picta</u>		juvenile: 13% plant, 85% animal adult: 88% plant, 10% animal (Carr 1952)	
Southern painted turtle			
<u>Chrysemys scripta</u>		juvenile: 30% plant, 70% animal (e.g., amphipods) adult: 89% plant, 11% animal (e.g., crayfish) (Carr 1952)	
Red-eared turtle			
<u>Graptemys kohni</u>			
Mississippi map turtle			
<u>Graptemys pseudogeographica</u>			
Sabine map turtle			
<u>Malaclemys terrapin</u>		crustaceans, mollusks, roots of marsh plants, carrion (Carr 1952)	
Diamondback terrapin			
<u>Trionyx spiniferus</u>		carnivorous (Carr 1952)	
Spiny softshell			
<u>Trionyx muticus</u>		fish, crayfish, insect larvae, some plant material (Carr 1952)	
Smooth softshell			

continued

# Appendix 6.3(35). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Nerodia cyclopion</u> Green water snake	<u>Gambusia</u> (77.6%); other fish (18.6%); tadpoles (3.5%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia fasciata clarki</u> Broad-banded water snake	fish (86.9%); frogs and toads (6.4%); tadpoles (4.8%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia fasciata clarki</u> Gulf salt marsh snake	fish (e.g., mullet), fiddler crabs (Wright and Wright 1957)		
<u>Nerodia erythrogaster</u> Yellow-bellied water snake	fish (65.3%); frogs and toads (27.0%); tadpoles (7.5%) (Mushinsky and Hebrard 1976)	Apr.-Aug. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia rhombifera</u> Diamondback water snake	fish (92.7%); frogs and toads (1.0%); tadpoles (6.1%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Regina grahami</u> Graham's crayfish snake	crayfish (100%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Regina rigida</u> Glossy crayfish snake	<u>Siren</u> , fish, crayfish (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Thamnophis airtalis</u> Carter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		
<u>BIRDS</u>			
<u>Cavia immer</u>	principally fish; also crustaceans and roots of aquatic plants (Bent 1919)	Oct.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(35). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Podiceps auritus</u> Horned grebe	shrimp and other crustaceans, small fish, some plant material, feathers (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Podiceps nigricollis</u> Eared grebe	insects, shrimp, some water plants, feathers (Bent 1919)	Oct.-May (Lowery 1974a)	
<u>Podilymbus podiceps</u> Pied Billed grebe	mostly animal: aquatic worms and insects, snails, small frogs and fish. plants: seeds and soft parts (Bent 1919)	Oct.-Apr. (Lowery 1974a)	
<u>Pelecanus erythrorhynchus</u> American white pelican	fish (Bent 1922)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Pelecanus occidentalis</u> Brown pelican			Extinct in Chenier Plain
<u>Phalacrocorax auritus</u> Double-crested cormorant	mostly fish; rarely crustaceans, mollusks, eel grass (Bent 1922)	Sept.-Apr.	"Blue List" Nat. Aud. Soc. (1976)
<u>Phalacrocorax olivaceus</u> Olivaceous cormorant		Year-round	
<u>Anhinga anhinga</u> Anhinga	fish, leeches, shrimp, crayfish, insects, salamanders, frogs, young turtles and alligators, snakes (Bent 1922)	Mar.-Oct. (Lowery 1974a)	
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Dichromanassa rufescens</u> Reddish egret		Mar.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

# Appendix 6.3(35). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)		"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Branta canadensis</u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges, some mollusks, crustaceans (Bent 1925)	Oct.-Feb. (Lowery 1974a)	Reproducing flock developed at Rockefeller Refuge
<u>Raser albifrons</u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	
<u>Anas platyrhynchos</u> Mallard	90% plant: sedges, grasses, smartweeds, pondweeds, duck-weeds, tubers, mast; 10% animal: insects, crustaceans, mollusks, fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas rubripes</u> Black duck	mast, grain, mollusks, crustaceans (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas fulvigula</u> Mottled duck	40% animal: mollusks, insects, crayfish, small fish 60% plant: mostly grasses (plants and seeds) (Bent 1923)	Year-round (Lowery 1974a)	
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas crecca</u> Green-winged teal	10% animal: insects, mollusks, crustaceans 90% plant: sedges, pondweeds and grasses (62%); other (28%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	

continued

# Appendix 6.3(35). Continued.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>Anas discors</u> Blue-winged teal	30% animal: worms, mollusks, insects, tadpoles 70% plant: sedges, pondweeds and grasses (43.6%); other (26.4%) (Bent 1923)	Feb.-Apr.; Sept.-Nov. (Lowery 1974a)	
<u>Anas clypeata</u> Northern shoveler	animal: worms, small mollusks, insects, shrimp, small fish, small frogs. plant: buds and young shoots of rushes and other aquatic; grasses (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Anas americana</u> American widgeon	90% plant, 10% animal (from Sept.-Apr.) (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Aix sponsa</u> Wood duck	10% animal (Mostly insects); 90% plant: duckweeds, cypress cones and galls, sedge seeds and tubers, grasses and grass seeds, acorns, etc. (Bent 1923)	Year-round (Lowery 1974a)	
<u>Aythya americana</u> Redhead	stems and buds of <u>Valisneria</u> , other aquatic plants, marine animals (Bent 1923)	Nov.-Feb. (Lowery 1974a)	
<u>Aythya collaris</u> Ring-necked duck	19% animal: insects, mollusks; 81% plant: aquatic plants, sedges, grasses, smartweeds (Cottam 1939)	Oct.-Apr. (Lowery 1974a)	
<u>Aythya valisineria</u> Canvasback	<u>Valisneria</u> , other aquatic plants, water lily and	Oct.-Mar. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Aythya marila</u> Greater scaup	crustaceans, mollusks, aquatic plants (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Aythya affinis</u> Lesser scaup	similar to <u>A. marila</u> (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Bucephala clangula</u> Common goldeneye	similar to Scaup, but also minnows, small frogs, tadpoles, crayfish, snails, insects (Bent 1923)	Nov.-Feb. (Lowery 1974a)	
<u>Bucephala albeola</u> Bufflehead	79% animal: insects, crustaceans, mollusks, fish: 21% plant: pondweeds, misc. (Cottam 1939)	Nov.-Mar. (Lowery 1974a)	
<u>Oxyura jamaicensis</u> Ruddy duck	72% plant: aquatic plants, grasses, sedges; 28% animal: insects, mollusks, crustaceans (Cottam 1939)	Nov.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(35). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Lophodytes cucullatus</u> Hooded merganser	mostly insects; also small fish, frogs, mollusks, crayfish, roots of aquatic plants, seeds, grain (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Mergus serrator</u> Red-breasted merganser	mostly fish; also crustaceans and mollusks (Bent 1923)	Nov.-Apr. (Lowery 1974a)	
<u>Haliaeetus leucocephalus</u> Bald eagle	mostly fish (dead or alive); also rabbits, turtles, coots, ducks, grebes, herons, egrets, terns, shore-birds, geese (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Pandion haliaetus</u> Osprey	bowfin, carp, catfish, eel, flounder, goldfish, menhaden, mullet, pickerel, shad, sunfish. No carrion (Bent 1937)	Sept.-Dec.; Feb.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Fulica americana</u> American coot	leaves, fronds, seeds and roots of aquatic plants; wild celery, algae, worms, snails, insects, small fish, tadpoles (Bent 1926)	Sept.-Apr. (Lowery 1974a)	
<u>Himantopus mexicanus</u> Black-necked stilt	99% animal: mostly insects; also crayfish, snails, tiny fish. 1% plant: seeds of aquatic and marsh plants (Bent 1927)	Mar.-Oct. (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Charadrius semipalmatus</u> Semipalmated plover	worms, small mollusks, crustaceans, insects (Bent 1929)	Mar.-May; Jul.-Nov. (Lowery 1974a)	
<u>Charadrius vociferus</u> Killdeer	98% insects and other animal matter (e.g., snails, crabs, crayfish); 2% plant: weed and grass seeds (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Charadrius alexandrinus</u> Snowy plover	marine worms, small crustaceans, other small animals (Bent 1929)	Jul.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Pluvialis dominica</u> American golden plover	almost entirely insects; also small mollusks and crustaceans; some grass seeds, seaweed (Bent 1929)	Mar.-May (Lowery 1974a)	

continued

# Appendix 6.3(35). Continued.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>Limosa fedoa</u>	insects, mollusks (Bent 1927)	Oct.-Nov. (Lowery 1974a)	
Marbled godwit			
<u>Numenius phaeopus</u>	earthworms, sandworms, insects, mollusks, small crustaceans, some plant material	Apr.-May (Lowery 1974a)	
Whimbrel			
<u>Numenius borealis</u>			Last occurrence in La. 1889 (Lowery 1974)
Eskimo curlew			
<u>Tringa melanoleuca</u>	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
Greater yellowlegs			
<u>Tringa flavipes</u>	mostly insects; also small crustaceans, small fish, worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
Lesser yellowlegs			
<u>Tringa solitaria</u>	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
Solitary sandpiper			
<u>Actitis macularia</u>	insects, occasionally small fish	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
Spotted sandpiper			
<u>Steganopus tricolor</u>	aquatic insects and their larvae; amphipods; seeds of aquatic plants (Bent 1927)	Apr.-May; Jul.-Sept. (Lowery 1974a)	
Wilson's phalarope			
<u>Capella gallinago</u>	worms, insects, seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
Common snipe			
<u>Limnodromus griseus</u>	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
Short-billed dowitcher			
<u>Limnodromus scolopaceus</u>	insect larvae, some plant material (Bent 1927)	Oct.-May (Lowery 1974a)	
Long-billed dowitcher			
<u>Calidris canutus</u>	small mollusks and crustaceans, marine worms, grass-	Mar.-Jun.; Jul.-Nov. (Lowery 1974a)	
Red knot			

continued

# Appendix 6.3(35). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Calidris pusilla</u> Semipalmated sandpiper	small mollusks, worms, insects, traces of plant material (Bent 1927)	Apr.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug.-May (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris fuscicollis</u> White-rumped sandpiper	78% animal: snails, marine worms 22% plant: seeds (Bent 1927)	Apr.-Jun. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Stilt sandpiper	animal (70%): small worms, mollusks, insects plant (30%): seeds (Bent 1927)	Apr.-May (Lowery 1974a)	
<u>Larus argentatus</u> Herring gull	dead fish and other detritus; live fish, crustaceans, mollusks, echinoderms, worms, insects (Bent 1921)	Nov.-Apr. (Lowery 1974a)	
<u>Larus delawarensis</u> Ring-billed gull	refuse, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Larus atricilla</u> Laughing gull	mostly small fish; also eggs of other seabirds, refuse (Bent 1921)	Year-round (Lowery 1974a)	
<u>Larus philadelphia</u> Bonaparte's gull	small fish, crustaceans, marine worms, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Gelochelidon nilotica</u> Gull-billed tern	insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sterna forsteri</u> Forster's tern	insects, floating carrion (Bent 1921)	Year-round (Lowery 1974a)	

continued

Appendix 6.3(35). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sterna hirundo</u> Common tern	almost wholly small fish; also shrimp and aquatic insects (Bent 1921)	Sept.-May (Lowery 1974a)	
<u>Sterna albifrons</u> Least tern	small fish; some crustaceans and insects (Bent 1921)	Apr.-Aug. (Lowery 1974a)	
<u>Sterna maxima</u> Royal tern	almost wholly small fish; also crabs, shrimp (Bent 1921)	Year-round (Lowery 1974a)	
<u>Sterna caspia</u> Caspian tern	almost wholly small fish; also shrimp and other surface-swimming aquatic life (Bent 1921)	Year-round (Lowery 1974a)	
<u>Chlidonias niger</u> Black tern	small fish, insects (Bent 1921)	Apr.-Sept. (Lowery 1974a) (non-breeding)	
<u>Megascyle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Stelgidopteryx ruficollis</u> Rough-winged swallow	insects (Bent 1942)	Mar.-Nov.	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Petrochelidon pyrrhonota</u> Cliff swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Corvus ossifragus</u> Fish crow	carion, crustaceans, fish, bird eggs, insects; berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Selurus noveboracensis</u> Northern waterthrush	almost wholly animal: small worms, mollusks, crustaceans, small fish, insects, a few seeds (Bent 1953)	Aug.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(35). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Seturus motacilla</u> Louisiana waterthrush	98% animal: insects, small mollusks, small fish (Bent 1953)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: fruit, grain, weed seeds; 27% animal: mostly insects, some spiders and myriapods (Bent 1953)	Year-round (Lowery 1974a)	
<u>Quiscalus mexicanus</u> Great-tailed grackle	insects, fish, worms, small lizards, tadpoles, eggs and young of other birds (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, tadpoles, frogs, small fish, spiders (Bent 1958)	Year-round (Lowery 1974a)	
<u>Quiscalus quiscula</u> Common grackle	30% animal: insects, spiders, myriapods, crayfish, earthworms, sowbugs, reptiles, snails, fish, amphibians, birds, mice; 70% plant: grain (esp. corn), fruit, weed seeds, acorns (Bent 1958)	Year-round (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Myotis austroriparius</u> Southeastern myotis	insects (Lowery 1974b)	Active year-round in warm weather; mating in spring (Lowery 1974b)	
<u>Lasiurus borealis</u> Red bat	insects (Lowery 1974b)	Active year-round in warm weather; young born May-June (Lowery 1974b)	
<u>Lasiurus seminolus</u> Seminole bat	insects (Lowery 1974b)	Active year-round in warm weather; young born in June (Lowery 1974b)	
<u>Lasiurus cinereus</u> Hoary bat	insects (Lowery 1974b)	Transient in coastal zone; spring and fall (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat		Active year-round; breeding peaks Nov. and Mar. (Lowery 1974b)	
<u>Myocastor coypus</u> Nutria	aquatic vegetation (Lowery 1974b)		

continued

Appendix 6.3(35). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Tursiops truncatus</u> Atlantic bottle-nosed dolphin	mullet, other fish, shrimp (Lowery 1974b)		Intelligent (Lilly 1967)
<u>Lutra canadensis</u> Nearctic river otter	crayfish, crabs, fish, frogs, turtles, snakes (Lowery 1974b)	Mating in late fall (Lowery 1974b)	
<u>Frichechus manatus</u> West Indian manatee	aquatic vegetation (Lowery 1974b)		Endangered

# Appendix 6.3(36). Fishes of Inland Open Water Habitat in the Chenier Plain.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY CARCHARHINIDAE REQUIEM SHARKS				
<u>Aprinonodon isodon</u> (Valenciennes) Finetooth Shark	See Nearshore Gulf (Appendix 6.3(30))	Broadly euryhaline; to freshwater, but mainly in higher salinities, locally; lower bays, passes (Bigelow and Schroeder 1948) (Conner Unpubl.)	Rare; occasionally enter area during warm months (Conner Unpubl.)	None
<u>Carcharhinus leucas</u> (Valenciennes) Bull Shark	See Nearshore Gulf (Appendix 6.3(30))	Broadly euryhaline; to freshwater, widespread (seasonally); mainly open areas (bays, alkes, larger canals) (Bigelow and Schroeder 1948) (Conner Unpubl.)	Moderately abundant during warm months (Conner Unpubl.)	None
FAMILY SPHYRINIDAE HAMMERHEAD SHARKS				
<u>Sphyrna tiburo</u> (Linnaeus)	See Nearshore Gulf (Appendix 6.3(30))	To moderate salinity areas only; mainly near tidal passes, lower bays (Bigelow and Schroeder 1948) (Conner Unpubl.)	Sparse; see habitat entry	None
FAMILY PRISTIDAE SAWFISHES				
<u>Pristis pectinata</u> (Lathan) Smalltooth Sawfish	See Nearshore Gulf (Appendix 6.3 6.4(30))	Broadly euryhaline; to freshwater (Bigelow and Schroeder 1953)	Very rare; occasionally taken in trawls and trammel nets (Conner Unpubl.)	None

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY DASYATIDAE STINGRAYS				
<u>Dasyatis americana</u> (Hildebrand and Schroeder)	See Nearshore Gulf (Appendix 6.3(30))	Broadly euryhaline, but mainly in higher salinity areas locally; lower bays, passes (Bigelow and Schroeder 1953) (Conner Unpubl.)	Moderately abundant in lower bays, passes, during warm months (Conner Unpubl.)	None
Southern Stingray				
<u>Dasyatis sabina</u> (LeSueur)	See Nearshore Gulf (Appendix 6.3(30))	Broadly euryhaline; to freshwater; widespread (Bigelow and Schroeder 1953) (Conner Unpubl.)	Abundant, especially in open bay areas, larger canals (Conner Unpubl.)	None
Atlantic Stingray				
FAMILY MYLIOBATIDAE EAGLE RAYS				
<u>Aetobatus narinari</u> (Euphrasen)	See Nearshore Gulf (Appendix 6.3(30))	High salinity areas only; lower bays, passes (Bigelow and Schroeder 1953) (Conner Unpubl.)	Rare; occasionally seen during warm months (Conner Unpubl.)	None
Spotted Eagle Ray				
<u>Rhinoptera bonasus</u> (Mitchill)	See Nearshore Gulf (Appendix 6.3(30))	Same as <u>A. narinari</u>	Same as <u>A. narinari</u>	None
Cownose Ray				
FAMILY LEPISOSTEIDAE GARS				
<u>Lepisosteus oculatus</u> (Winchell)	Carnivore; predator/scavenger on fishes, macroinvertebrates (Suttkus 1963)	Fresh to brackish areas, principally in protected areas; swamps, bayous, lakes, canals (Suttkus 1963) (Conner Unpubl.)	Locally abundant, especially in fresh swamps, bayous, canals (Conner Unpubl.)	Limited value as commercial fish (trammel nets); much less important than other gars
Spotted Gar				

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Lepisosteus osseus</u> (Linnaeus) Longnose Gar	See Nearshore Gulf Appendix 6.3(30)	Broadly euryhaline; wide-spread, but mainly in fresher areas, rivers, canal, lakes (Suttkus 1963) (Conner Unpubl.)	Moderately abundant in rivers, canals, lakes (Conner Unpubl.)	Minor value as commercial fish (trammel nets) (Conner Unpubl.)
<u>Lepisosteus spatula</u> (Lacepede) Alligator Gar	See Nearshore Gulf (Appendix 6.3(30))	See longnose gar entry; less rheophilic than <u>L. osseus</u> (Conner Unpubl.)	Moderately abundant in upper bays, canals, lakes, bayous (Conner Unpubl.)	Moderate value as commercial fish (trammel nets) (most important of gars) (Conner Unpubl.)
FAMILY AMIIDAE BOWFINS				
<u>Amia calva</u> (Linnaeus) Bowfin	Carnivore; predator/scavenger on fishes, amphibians, macro-invertebrates (Conner Unpubl.) (Anderson 1957)	Fresh to slightly brackish areas only; mainly in quiet water, swamps, canals, ditches, bayous, fresh lakes (Conner Unpubl.)	Locally abundant; see habitat entry (Conner Unpubl.)	Limited value as gamefish
FAMILY ELOPIDAE TARPONS				
<u>Elops saurus</u> (Linnaeus) Ladyfish - Adults	See Nearshore Gulf (Appendix 6.3(30))	Pelagic; mainly in high salinity areas; lower bays, passes (Gunter 1945) (Gunter 1938)	Locally abundant; see habitat entry; warm months (Conner Unpubl.)	None
Ladyfish - Young		Pelagic; broadly euryhaline, to fresh areas; larvae and juveniles widespread in inland open-water areas (Springer and Woodburn 1960) (Conner and Truesdale 1973) (Herke 1966) (Arnold, Wheeler, and Baxter 1960)	Moderately abundant along march edges, April-June (Conner Unpubl.) (Conner and Truesdale 1973) (Herke 1966)	None
<u>Megalops atlantica</u> (Valenciennes) Tarpon	Carnivore; voracious predator, chiefly on fishes (Hildebrand 1963) (Gowanloch 1933)	Pelagic; broadly euryhaline; to freshwater; mainly close to shore, passes, rivers (Hildebrand 1963) (Gowanloch 1933)	Formerly abundant in Calcasieu Pass, River, nearshore Gulf; especially August-October (Gowanloch 1933)	Very popular gamefish; has declined in recent decades, locally (Conner Unpubl.)

continued

Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY ANGUILLIDAE FRESHWATER EELS				
<u>Anguilla rostrata</u> (LeSueur)	See Nearshore Gulf (Appendix 6.3(30))	Demersal; broadly euryhaline but mainly in brackish to fresh areas except during spawning migration; river channel, upper bay, larger bayous (Conner Unpubl.)	Sparse; very cryptic; occasionally taken in trawls, seines, hook and line (Conner Unpubl.)	None
American Eel - Adults				
American Eel - Young		Planktonic larvae mainly offshore; demersal elvers widespread in bays, bayous, lakes (Conner Unpubl.)	Sparse; very cryptic; occasionally taken by trawls, seines (Conner Unpubl.)	None
FAMILY MURAENIDAE MORAYS				
<u>Gymnothorax moringua</u> (Cuvier)	See Nearshore Gulf (Appendix 6.3(30))	Demersal; higher salinity areas only; mainly near pilings, reefs, jetties (Conner Unpubl.)	Rare; occasionally taken by hook and line (Conner Unpubl.)	None
Spotted Moray				
FAMILY OPHICHTHIDAE SNAKE EELS				
<u>Myrophis punctatus</u> (Lutken)	See Nearshore Gulf (Appendix 6.3(30))	Demersal; broadly euryhaline but adults mainly in moderate to high salinity areas (Gunter 1945) (Gunter 1938) (Perret 1971)	Moderately abundant, often taken in trawls (Conner Unpubl.)	None
Speckled Worm Eel - Adults				
Speckled Worm Eel - Young		Planktonic larvae mainly offshore; elvers broadly euryhaline to freshwater; widespread (Gunter 1945) (Norden 1966) (Gunter 1938) (Perret 1971)	Abundant; often taken in trawls, seines (Conner Unpubl.)	None

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Ophichthus gomesi</u> (Castlenau)	See Nearshore Gulf (Appendix 6.3(30))	Demersal; mainly in high salinity areas; lower bays, tidal passes (Gunter 1945) (Gunter 1938)	Moderately abundant in high salinity areas (Conner Unpubl.) often taken in trawls	None
Shrimp Eel - Adults				
Shrimp Eels - Young		Planktonic larvae mainly offshore; elvers as adults (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Abundant; mainly during warm months (Conner Unpubl.)	None
FAMILY CLUPEIDAE HERRINGS				
<u>Alosa chrysochloris</u> (Rafinesque)	See Nearshore Gulf (Appendix 6.3(30)) -forage species	Broadly euryhaline, but mainly in fresher areas; river channels, upper bays, fresh lakes (Hildebrand 1963) (Conner Unpubl.)	Very cyclic; year-class strengths seem to fluctuate radically; can be moderately abundant in some years (Conner Unpubl.)	Limited value as baitfish (dipnetted) for trotlines), crawfish traps (Conner Unpubl.)
Skipjack Herring - Adults				
Skipjack Herring - Young	-forage species	Planktonic larvae mainly in rivers (Conner Unpubl.)	See above entry; in "good" years larvae moderately abundant April - July; juveniles moderately abundant June - October (Conner Unpubl.)	None
<u>Brevoortia patronus</u> (Goode)				
Gulf Menhaden				
<u>Dorosoma cepedianum</u> (LeSueur)	See Nearshore Gulf (Appendix 6.3(30)) -forage species	Broadly euryhaline, but mainly in fresher areas, where very widespread (Miller 1963) (Conner Unpubl.)	Abundant, locally; see habitat entry (Conner Unpubl.) (Herke 1966)	Moderate value in spring dipnet fishery for bait for trotlines and crawfish traps (Conner Unpubl.)
Gizzard Shad - Adults				
Gizzard Shad - Young	-forage species	Planktonic larvae mainly in rivers (Conner Unpubl.); juveniles as adults	Larvae abundant late March - June; juveniles moderately abundant June - October (Conner Unpubl.)	None

continued

Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Dorosoma petenense</u> (Gunther)	See Nearshore Gulf (Appendix 6.3(30)) -forage species	Same as gizzard shad	Same as gizzard shad	Limited value as baitfish
Threadfin Shad - Adults				
Threadfin Shad - Young	-forage species	Same as gizzard shad	Larvae abundant May - September; juveniles abundant June - November (Conner Unpubl.)	None
<u>Halengula pensacolatae</u> (Conce and Bean)	See Nearshore Gulf (Appendix 6.3(30))	To moderate salinity areas but mainly in higher salinity; lower bays, passes (Conner Unpubl.)	Moderately abundant, locally, during warm months (Conner Unpubl.)	None
Scaled Sardine				
???	See Nearshore Gulf (Appendix 6.3(30))	High salinity areas only; lower bays, passes (Conner Unpubl.)	Sparse; mainly limited outside inland area (Conner Unpubl.)	None
Atlantic Thread Herring				
FAMILY ENGRAULIDAE ANCHOVIES				
<u>Anchoa hepsetus</u> (Linnaeus)	See Nearshore Gulf (Appendix 6.3(30)) -forage species	Pelagic; broadly euryhaline but mainly in high salinity areas; lower bays, passes (Gunter 1945) (Gunter 1938) (Norden 1966)	Locally abundant, often taken in seines, trawls, castnets (Conner Unpubl.) (Tarbox 1974) (Norden 1966); declining during cold months	None
Striped Anchovy				
<u>Anchoa mitchilli</u> (Valenciennes)	See Nearshore Gulf (Appendix 6.3(30)) -forage species	Pelagic; broadly euryhaline to fresh water; widespread (Gunter 1945) (Norden 1966) (Gunter 1938) (Perret 1971)	Abundant; increasing so in summer; usually taken in seines, trawls, cast-nets (Conner Unpubl.) (Herke 1966) (Tarbox 1974) (Norden 1966)	None
Bay Anchovy - Adults				
Bay Anchovy - Young	-forage species	Planktonic larvae widespread; juveniles as adults (Gunter 1945) (Norden 1966) (Gunter 1938) (Perret 1971)	Abundant year-round peak usually in early summer (Sabins 1973) (Tarbox 1974) (Conner Unpubl.)	None

Continued

Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY ESOCIDAE PIKES				
<u>Esox americanus vermiculatus</u> (LeSueur)	Carnivore; predator on fishes, amphibians, macroinvertebrates (Scott and Crossman 1973)	Freshwater only; mainly quiet, weedy areas; swamps, sluggish creeks, ditches, canals (Conner Unpubl.)	Sparse; generally solitary except at very young stages (Conner Unpubl.)	None
Grass Pickerel				
FAMILY SYNOdontidae LIZARDFISHES				
<u>Synodus foetens</u> (Linnaeus)	See Nearshore Gulf (Appendix 6.3(25))	Demersal; to moderate salinities; adults primarily offshore; juveniles mainly in lower bays, passes (Gunter 1945) (Gunter 1938) (Perret 1971)	Sparse; occasionally taken in trawls, seines, mainly in warm months (Tarbox 1974) (Conner Unpubl.)	None
Inshore Lizardfish				
FAMILY CYPRINIDAE MINNOWS AND CAPPS				
<u>Cyprinus carpio</u> (Linnaeus)	Omnivore; grazer/sucker type feeder on plants, benthic invertebrates, detritus, carrion (Scott and Crossman 1973) (Dalquest and Peters 1966)	Fresh to brackish areas; widespread, larvae planktonic; post larvae and juveniles mainly in temporarily flooded areas (Conner Unpubl.)	Moderately abundant in fresh areas; young abundant late March through summer (Conner Unpubl.)	Minor component of freshwater hoopnet fishery
Carp				
<u>Hybognathus nuchalis</u> (Agassiz)	Omnivore; primarily herbivorous, grazer on detritus, benthic invertebrates (Scott and Crossman 1973)	Fresh areas only; swamps, bayous, rivers; mainly in quiet-water areas adjacent to currents (Fingerman and Suttkus 1961) (Conner Unpubl.)	Locally abundant especially as young in summer (Conner Unpubl.)	None
<u>Notemigonus crysoleucas</u> (Mitchill)	Omnivore; midwater and surface grazer/predator on zooplankton, filamentous algae, periphyton, fouling invertebrates (Scott and Crossman 1973) -forage species	Fresh to brackish areas; widespread (Conner Unpubl.)	Locally abundant, see habitat entry (Conner Unpubl.)	None; (these sold as bait brought in from minnow farms outside the area)
Golden Shiner				

continued

Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Notropis atherinoides</u> (Rafinesque) Emerald Shiner	Omnivore; predator/ grazer on zooplankton, filamentous algae (Scott and Crossman 1973) -forage species	Fresh areas only; large river channel (Conner Unpubl.) (Douglas 1974)	Locally abundant; river channel (Conner Unpubl.)	None
<u>Notropis bethanani</u> (Meek) Ghost Shiner	-forage species	Fresh areas only; river and large stream channels (Conner Unpubl.) (Douglas 1974)	Sparse; generally limited above Chenier Plain (Conner Unpubl.)	None
<u>Notropis emilliae</u> (Hay) Pugnose Minnow	-forage species	Fresh to slightly brackish areas; rivers, bayous, swamps, canals, ditches (Conner Unpubl.)	Locally abundant, especially in quiet weedy areas (Conner Unpubl.)	None
<u>Notropis fumeus</u> (Evermann) Ribbon Shiner	-forage species	Fresh areas only; swamps, creeks, ditches (Conner Unpubl.)	Locally abundant (Conner Unpubl.)	None
<u>Notropis lutrensis</u> (Baird and Girard) Red Shiner	-forage species	Fresh areas only; large river channel (Conner Unpubl.) (Douglas 1974)	Sparse; generally limited above Chenier Plain (Conner Unpubl.)	None
<u>Notropis maculatus</u> (Hay) Taillight Shiner	-forage species	Fresh areas only; swamps small sluggish streams (Conner Unpubl.)	Sparse; generally limited above Chenier Plain (Conner Unpubl.)	None
<u>Notropis sabiniae</u> (Jordan and Gilbert) Sabine Shiner	-forage species	Fresh areas only; large river and stream channels (Conner Unpubl.)	See above entry	None
<u>Notropis texanus</u> (Girard) Weed Shiner	-forage species	Fresh to slightly brackish areas; river channel, creeks, bayous (Conner Unpubl.)	Locally abundant, especially in quiet weedy areas (Conner Unpubl.)	None

continued

Appendix 6.3(36). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Notropis volucellus</u> (Cope) Mimic Shiner	Omnivore; predator/grazer on plankton, attached algae (Scott and Crossman 1973)	Fresh areas only; large river channel (Conner Unpubl.)	Sparse, mainly limited above Chenier Plain (Conner Unpubl.)	None
<u>Pimephales vigilax</u> (Baird and Girard) Bullhead Minnow	-forage fish	Same as mimic shiner	Same as mimic shiner	None
FAMILY CATOSTOMIDAE SUCKERS				
<u>Carpiodes carpio</u> (Rafinesque) River Carpsucker	Omnivore; sucker/grazer type feeder on benthic invertebrates, algae, detritus (Dalquest and Peters 1966)	Fresh areas only; large river channel (Douglas 1974) (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	Minor value as by-product of inland hoop and trammel net fisheries; sold in bulk for hog feed (Conner Unpubl.)
<u>Erimyzon oblongus</u> (Mitchill) Creek Chubsucker	Omnivore; sucker/grazer type feeder on benthic invertebrates, algae, detritus (Conner Unpubl.)	Fresh areas only; swamps, and small sluggish streams (Conner Unpubl.)	Same as river carpsucker	None
<u>Ictiobus bubalus</u> (Rafinesque) Smallmouth Buffalo - Adults	Omnivore; sucker/grazer type feeder on benthic invertebrates, algae, detritus (Dalquest and Peters 1966)	Fresh to brackish areas; widespread (Conner Unpubl.) (Herke 1966)	Locally abundant; upper bays, lakes, river channel, canals, bayous (Herke 1966) (Conner Unpubl.)	Principal component of inland hoop and trammel net fishery (Conner Unpubl.)
Smallmouth Buffalo - Young	Larvae feed mainly on zooplankton; juveniles as adults (Conner Unpubl.) (Dalquest and Peters 1966) -forage species	Fresh areas; larvae widespread in temporarily flooded areas; juveniles as adults (Conner Unpubl.)	Locally abundant; March through summer (Conner Unpubl.)	None
<u>Ictiobus cyprinellus</u> (Valenciennes) Bigmouth Buffalo	Omnivore; mainly carnivorous; sucker/grazer on benthic invertebrates, zooplankton (Scott and Crossman 1973)	Fresh areas only; mainly river channel and floodplain oxbows, bayous (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	Minor component of inland hoop-and-trammel net fishery

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Minytremia melanops</u> (Rafinesque)		Fresh areas only; river channel, swamps, bayous (Conner Unpubl.)	Sparse, mainly limited above Chenier Plain (Conner Unpubl.)	None
Spotted Sucker				
<u>Moxostoma poecilurum</u> (Jordan)		Fresh areas only; river and large stream channels (Conner Unpubl.)	Same as spotted sucker	None
Blacktail Redhorse				
FAMILY ICTALURIDAE FRESHWATER CATFISHES				
<u>Ictalurus furcatus</u> (LeSueur)	Omnivore; mainly carnivorous; predator/grazer on fishes, macro-invertebrates, carrion (Conner Unpubl.) (Darnell 1958)	Fresh to moderate salinity areas; mainly in fresh and brackish areas; river channel, bayous, upper bay, marsh lakes (Conner Unpubl.) (Herke 1966)	Abundant; often taken in trawls, commercial nets, hook and line (Conner Unpubl.) (Herke 1966)	Popular gamefish major component of inland trout-line, hoopnet, trammel net catches (Conner Unpubl.); used in local fish culture
Blue Catfish - Adults				
Blue Catfish - Young	Omnivore; similar to adults but using more insect larvae, smaller invertebrates, detritus (Conner Unpubl.) (Darnell 1958)	Essentially as adults but preferring fresh areas; river channel (Conner Unpubl.)	Locally abundant; see habitat entry (Conner Unpubl.)	None
<u>Ictalurus melas</u> (Rafinesque)	Omnivore; predator/grazer on benthic invertebrates, algae, small fishes (Scott and Crossman 1973)	Fresh to slightly brackish; swamps, bayous, canals, ditches (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	None
Black Bullhead				
<u>Ictalurus natalis</u> (LeSueur)	Omnivore, predator/grazer on benthic invertebrates, carrion, detritus (Scott and Crossman 1973)	Same as black bullhead	Locally abundant, especially small canals, ditches, swamps (Conner Unpubl.)	None
Yellow Bullhead				
<u>Ictalurus punctatus</u> (Rafinesque)	See blue catfish entry	See blue catfish entry; this species is slightly less salt-tolerant and tends to prefer quieter water areas than <u>I. furcatus</u> (Conner Unpubl.)	See blue catfish entry; tends to predominate in fresher areas (Conner Unpubl.)	See blue catfish entry; this species tends to predominate in fresher areas and more benthic situations (Conner Unpubl.)
Channel Catfish - Adults				

continued

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
Channel Catfish - Young	Same as blue catfish	Same as blue catfish	Same as blue catfish, tends to predominate in fresher areas (Conner Unpubl.)	None
<u>Noturus gyrinus</u> (Mitchill)	Carnivore; predator/ grazer on benthic invertebrates (Scott and Crossman 1973)	Fresh areas only; swamps, canals, ditches (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	None
<u>Pylodictis olivaris</u> (Rafinesque)	Carnivore; predator on fishes, macroinvertebrates	Fresh to brackish areas; mainly in river channel (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	Popular gamefish; minor component of inland hoopnet and trotline catch (Conner Unpubl.)
Flathead Catfish				
FAMILY ARIIDAE SEA CATFISHES				
<u>Arius felis</u> (Linnaeus)	See Nearshore Gulf (Appendix 6.3(30))	Broadly euryhaline, but mainly in high to moderate salinity areas; bays, large canals, bayous, marsh lakes (Conner Unpubl.) (Herke 1966) (Gunter 1945) (Gunter 1938) (Perret 1971)	Locally abundant, mainly during warm months (Conner Unpubl.) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971)	None
Sea Catfish				
<u>Bagre marinus</u> (Mitchill)	See Nearshore Gulf (Appendix 6.3(30))	To moderate salinity areas; mainly limited to high salinity; lower bays, psesses (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Tarbox 1974) (Gunter 1938) (Perret 1971)	Sparse; mainly limited to nearshore Gulf area except during warm months (Conner Unpubl.) (Tarbox 1974)	None
Gafftopsail Catfish				
FAMILY APHREDODERIDAE PIRATE PERCHES				
<u>Aphredoderus sayanus</u> (Gilliams)	Carnivore; predator on small fishes, macroinvertebrates (Conner Unpubl.)	Fresh to slightly brackish; swamps, canals, ditches, bayous (Conner Unpubl.)	Locally abundant, especially in fresh swamps, ditches, canals (Conner Unpubl.)	None
Pirate Perch				

continued

Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY BATRACHOIDIDAE TOADFISHES				
<u>Opsanus beta</u> (Goode and Bean)	See Nearshore Gulf (Appendix 6.3 (30))	Limited to areas of high salinity; mainly near reefs, pilings, jetties; lower bay, tidal passes (Conner Unpubl.)	Sparse; see habitat entry (Conner Unpubl.)	None
Gulf Toadfish				
<u>Porichthys porosissimus</u> (Valenciennes)	See Nearshore Gulf (Appendix 6.3 (30))	Limited to areas of high salinity; lower bays, passes (Conner Unpubl.) (Gunter 1945) (Gunter 1938) (Perret 1971)	Sparse; occasionally taken in summer trawls (Conner Unpubl.)	None
Atlantic Midshipman				
FAMILY GOBIESOCILAE CLINGFISHES				
<u>Coblesox strumosus</u> (Cope)	See Nearshore Gulf (Appendix 6.3 (30))	High to moderate salinity areas; mainly near reefs, pilings, jetties (Conner Unpubl.) (Gunter 1945) (Gunter 1938) (Tarbox 1974)	Sparse; occasionally taken in trawls, dredges (Conner Unpubl.); larvae in plankton near reefs, late winter, spring (Conner Unpubl.)	None
Skilletfish				
FAMILY GADIDAE CODFISHES				
<u>Drophysia floridanus</u> (Bean and Dresel)	See Nearshore Gulf (Appendix 6.3 (30))	Limited to areas of high salinity; lower bays, passes (Gunter 1945) (Gunter 1938) (Perret 1971) (Conner Unpubl.)	Sparse; occasionally taken in trawls, seines during colder months (Conner Unpubl.)	None
Southern Hake				

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY OPHIDIIDAE				
CUSK-EELS AND BROTULAS				
<u>Ophidion welschi</u> (Nichols and Breder)		Limited to areas of high salinity; lower bays, passes (Gunter 1945) (Norden 1966) (Gunter 1938) (Perret 1971)	Rare; occasionally taken in trawls (Conner Unpubl.)	None
Crested Cusk-Eel				
FAMILY EXOCOETIDAE				
FLYINGFISHES AND HALIBEAKS				
<u>Hyporhamphus unifasciatus</u> (Ranzani)	See Nearshore Gulf (Appendix 6.3 (30))	High to moderate salinity areas; mainly in lower bays, canals, bayous, marsh lakes, passes (Gunter 1945) (Norden 1966) (Gunter 1938) (Conner Unpubl.)	Moderately abundant; mainly during warm months (Conner Unpubl.)	None
Halfbeak				
FAMILY BELONIDAE				
NEEDLEFISHES				
<u>Strongylura marina</u> (Walbaum)	See Nearshore Gulf (Appendix 6.3 (30))	Broadly euryhaline; to freshwater; widespread (Gunter 1945) (Gunter 1938) (Norden 1966) (Perret 1971) (Conner Unpubl.)	Moderately abundant but seldom concentrated; often taken in seine, castnets (Tarbox 1974) (Conner Unpubl.) (Norden 1966)	None
Atlantic Needlefish				
FAMILY CYPRINODONTIDAE				
KILLFISHES				
<u>Adinia xenica</u> (Jordan and Gilbert)	Omnivore; mainly herbivorous; grazer on algae, periphyton, detritus (Day, Smith, Wagner and Stowe 1973) (Reubsam 1972) (Odum 1971) (Hastings and Yerger 1971)	Broadly euryhaline; to freshwater, but mainly in high to moderate salinities; mainly along edges of protected areas; ponds, ditches, canals (Reubsam 1972) (Hastings and Yerger 1971) (Conner Unpubl.)	Locally abundant, especially in winter and spring (Reubsam 1972) (Herke 1966) (Conner Unpubl.)	None
Diamond Killifish				

continued

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Importance
<u>Cyprinodon variegatus</u> (Lacepede) Sheepshead Minnow	Omnivore; primarily herbivorous; grazer on algae, detritus, benthic invertebrates, periphyton (Reubsamen 1972) (Odum 1971) (Simpson and Gunter 1956) -forage species	Broadly euryhaline; wide- spread along shores and in protected marsh waters (Reubsamen 1972) (Martin 1970) (Herke 1966)	Abundant, peaks observed in winter and spring (Reubsamen 1972)	Minor value as baitfish
<u>Fundulus chrysotus</u> (Günther) Golden Topminnow	-forage species	Fresh to slightly brackish areas; mainly in fresh swamps, ditches, canals, borrow pits (Conner Unpubl.) (Herke 1966)	Locally abundant; especially quiet weedy areas	None
<u>Fundulus grandis</u> (Baird and Girard) Gulf Killifish	Omnivore; mainly carnivorous; predator/ grazer on small inverte- brates, fishes, detritus (Reubsamen 1972) (Simpson and Gunter 1956) -forage species	See sheepshead minnow entry (Reubsamen 1972) (Simpson and Gunter 1956) (Herke 1966) (Conner Unpubl.)	See sheepshead minnow entry	Minor value as baitfish
<u>Fundulus jenkinsi</u> (Evermann) Saltmarsh Topminnow	-forage species	Broadly euryhaline; in protected marsh areas (Tarbox 1974) (Conner Unpubl.)	Rare, occasionally seined in marsh ditches, ponds (Conner Unpubl.)	None
<u>Fundulus nottii</u> (Agassiz) Starhead Topminnow	-forage species	Fresh areas only; swamps, ditches, canals, small streams; usually associated with vegetation (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	None
<u>Fundulus olivaceus</u> (Storer) Blackspotted Topminnow	-forage species	Fresh areas only; swamps, ditches, canals, river channels, bayous (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	None
<u>Fundulus pulvereus</u> (Evermann) Bayou Killifish	Carnivore; predator/ grazer on small in- vertebrates (Reubsamen 1972) (Forman 1968) -forage species	Broadly euryhaline; in protected marsh areas; bayous, canals, ditches, ponds (Conner Unpubl.) (Tarbox 1974) (Reubsamen 1972)	Locally abundant, winter through spring (Tarbox 1974) (Reubsamen 1972) (Conner Unpubl.)	None
<u>Fundulus similis</u> (Baird and Girard) Longnose Killifish	Omnivore; predator/ grazer on benthic invertebrates, detritus (Reubsamen 1972) (Forman 1968) -forage species	Broadly euryhaline but greatest concentrations in moderate to high salinities; along beaches, edges of marsh lakes, bayous (Reubsamen 1972) (Forman 1968) (Simpson and Gunter 1956) (Conner Unpubl.)	Locally abundant; lower bays, high salinity marshes (Conner Unpubl.)	None

Appendix 6.3(36). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Lucania parva</u> (Baird)	Omnivore; primarily carnivorous; predator/grazer on invertebrates, detritus (Reubsamen 1972) -forage species	Same as sheepshead minnow	Locally abundant; peaks in summer (Reubsamen 1972)	None
FAMILY POECILIIDAE LIVERBEARERS				
<u>Gambusia affinis</u> (Baird and Girard)	Omnivore; primarily carnivorous; predator/grazer on invertebrates (Conner Unpubl.) (Simpson and Gunter 1956) -forage species	Broadly euryhaline, but mainly in fresh to brackish areas; along edges of protected areas; swamps, canals, ditches, bayous, ponds (Simpson and Gunter 1956) (Conner Unpubl.)	Locally abundant; especially in fresh areas (Conner Unpubl.)	None
Mosquitofish				
<u>Heterandria formosa</u> (Agassiz)	Herbivore; grazer on epiphytes, benthic algae (Conner Unpubl.) -forage species	Fresh and brackish areas only; swamps, ditches, borrow pits; usually in weedy areas (Conner Unpubl.)	Rare; occasionally taken in ditches, borrow pits (Conner Unpubl.)	None
Least Killifish				
<u>Poecilia latipinna</u> (LeSueur)	Herbivore; grazer on epiphytes, benthic algae, detritus (Reubsamen 1972) (Odum 1971) -forage species	Broadly euryhaline to freshwater; widespread along protected shores, open beaches, bayous, ditches, canals, ponds (Simpson and Gunter 1956) (Herke 1966) (Conner Unpubl.)	Locally abundant year-round (Conner Unpubl.)	None
Sailfin Molly				
FAMILY ATHERINIDAE SILVERSIDES				
<u>Labidesthes sicculus</u> (Cope)	Carnivore; predator on neustonic invertebrates, zooplankton (Conner Unpubl.) -forage species	Fresh areas only; swamps, small streams (Conner Unpubl.)	Locally abundant in fresh areas (Conner Unpubl.)	None
Brook Silverside				
<u>Membras marinica</u> (Valenciennes)	See Nearshore Gulf (Appendix 6.3(30)) -forage species	Broadly euryhaline; to freshwater; mainly along shores of bays, lakes, large canals, bayous (Gunter 1945) (Robbins 1969)	Locally abundant during summer (Tarbox 1974) (Conner Unpubl.)	None
Rough Silverside				

continued

Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Menidia beryllina</u> (Cope) Tidewater Silverside	See Nearshore Gulf entry (Appendix 6.3(30)) -forage species	Broadly euryhaline; wide-spread (Gunter 1945) (Gunter 1938) (Wagner 1973) (Conner Unpubl.)	Abundant, peaks in summer (Tarbox 1974) (Norden 1966) (Conner Unpubl.)	None
FAMILY SYNGNATHIDAE PIPEFISHES AND SEAHORSES				
<u>Syngnathus louisianae</u> Gunther Chain Pipefish		High to moderate salinity areas; mainly associated with vegetation (Conner Unpubl.)	Rare; Occasionally taken by seines in higher salinity marsh ponds, ditches (Conner Unpubl.)	None
<u>Syngnathus scovelli</u> (Evermann and Kendall) Gulf Pipefish	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline; to freshwater; widespread along edges and areas having dense vegetation; ditches, canals, ponds (Gunter 1945) (Gunter 1938)	Locally abundant; see habitat entry (Conner Unpubl.)	None
FAMILY PERCICHTHYIDAE TEMPERATE BASSES				
<u>Morone chrysops</u> (Rafinesque) White Bass	Carnivore; predator mainly on fishes (Scott and Crossman 1973)	Broadly euryhaline but mainly in fresh and brackish areas; pelagic in open waters of river channel, large bayous, canals, lakes, upper bays (Conner Unpubl.)	Locally abundant in fresher areas (Conner Unpubl.)	Minor value as gamefish
<u>Morone mississippiensis</u> Jordan and Eigenmann Yellow Bass	Carnivore; predator mainly on fishes (Conner Unpubl.)	See white bass entry; this form slightly more salt tolerant and more common in smaller water bodies (Conner Unpubl.)	Locally abundant; mainly in fresh areas, river channel, swamps (Conner Unpubl.)	Minor value as gamefish
<u>Morone saxatilis</u> (Walbaum) Striped Bass	See Nearshore Gulf entry (Appendix 6.3(30))		Rare; occasionally caught by hook and line, trammel nets (Conner Unpubl.)	See Nearshore Gulf entry (Appendix 6.3(25))

continued

FAMILY CENTRARCHIDAE SUNFISHES					
		<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Centrarchus macropterus</u> (Lacepede)		Carnivore; predator on small fishes, macro-invertebrates (Conner Unpubl.)	Fresh to slightly brackish areas; swamps, bayous, sluggish streams (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	Limited value as gamefish
<u>Elassoma zonatum</u> Jordan		Carnivore; predator/grazer on small invertebrates (Conner Unpubl.)	Fresh to slightly brackish areas; swamps, ditches, small streams; in vegetation (Conner Unpubl.) (Douglas 1974)	Locally abundant in fresh areas (Conner Unpubl.)	None
<u>Banded Pygmy Sunfish</u>					
<u>Lepomis cyanellus</u> Rafinesque		Carnivore; predator on fishes, macro-invertebrates (Scott and Crossman 1973)	Fresh to brackish areas; backwaters of streams, swamps, ditches, canals (Douglas 1974) (Conner Unpubl.)	Sparse, mainly limited above Chenier Plain (Conner Unpubl.)	None
<u>Green Sunfish</u>					
<u>Lepomis gulosus</u> (Cuvier)		Carnivore; predator on fishes, macro-invertebrates (Lairmore 1957) (Conner Unpubl.)	Fresh to brackish areas; swamps, borrow pits, canals, bayous (Douglas 1974) (Conner Unpubl.)	Locally abundant; especially in swamps (Conner Unpubl.)	Minor value as gamefish
<u>Warmouth</u>					
<u>Lepomis macrochirus</u> Rafinesque		Omnivore; predator/grazer on invertebrates, algae (Scott and Crossman 1973)	Fresh to brackish areas; widespread in fresh habitats (Conner Unpubl.)	Locally abundant (Conner Unpubl.)	Minor value as gamefish
<u>Bluegill</u>					
<u>Lepomis marginatus</u> (Holbrook)					
<u>Dollar Sunfish</u>					
<u>Lepomis megalotis</u> (Rafinesque)		Carnivore; predator/grazer on invertebrates, especially insects (Scott and Crossman 1973)	Fresh to brackish areas; especially swamps, borrow pits (Conner Unpubl.)	Locally abundant in fresh areas (Conner Unpubl.)	None
<u>Longear Sunfish</u>					
<u>Lepomis microlophus</u> (Günther)		Omnivore; primarily carnivorous; predator/grazer on invertebrates, mainly mollusks (Conner Unpubl.)	Fresh areas only; mainly in rivers, creeks (Douglas 1974) (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	None
<u>Redear Sunfish</u>					
			Fresh to brackish areas; mainly in swamps, borrow pits, canals, bayous, lakes (Douglas 1974) (Conner Unpubl.)	Moderately abundant in fresh lakes, ponds, borrow pits (Conner Unpubl.)	Minor value as gamefish

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
<u>Lepomis punctatus</u> (Valenciennes)	See redear sunfish entry	Fresh areas only; mainly in swamps (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	Minor value as gamefish
Spotted Sunfish				
<u>Lepomis symmetricus</u> Forbes		Fresh to brackish areas; common in swamps, borrow pits, ditches (Conner Unpubl.)	Locally abundant (Conner Unpubl.)	None
Bantam Sunfish				
<u>Micropterus salmoides</u> (Lacepede)	Carnivore; predator mainly on fishes, macroinvertebrates (Conner Unpubl.)	Fresh to brackish; widespread in lentic situations, especially in areas of low turbidity (Douglas 1974) (Conner Unpubl.)	Abundant in lentic habitats, sluggish streams, canals, bayous (Conner Unpubl.)	Popular gamefish. Large quantities caught in marsh ponds, impoundments
Largemouth Bass - Adults				
Largemouth Bass - Young	Carnivore; predator on zooplankton, later insects, small fishes (Conner Unpubl.)	Mainly in fresh areas; shallow marginal zones of swamps, stream backwaters (Conner Unpubl.)	Moderately abundant in lentic freshwater areas, April through summer (Conner Unpubl.)	None
<u>Pomoxis annularis</u> Rafinesque	Carnivore; predator on fishes, macroinvertebrates; larvae feed on zooplankton (Scott and Crossman 1973) (Conner Unpubl.)	Fresh to brackish; widespread in lentic and stream habitats (Douglas 1974) (Conner Unpubl.)	Moderately abundant in fresh areas; young abundant March through July (Conner Unpubl.)	Popular gamefish less important, locally than next species (Conner Unpubl.)
White Crappie				
<u>Pomoxis nigromaculatus</u> (LeSueur)	Same as white crappie	See white crappie entry; this species more common in less turbid lentic situations (Conner Unpubl.)	Moderately abundant in fresh areas, especially quiet weedy areas (Conner Unpubl.)	Popular gamefish see above entry
Black Crappie				

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY PERCIDAE PERCHES				
<u>Etheostoma chlorosomum</u> (Hay)	Carnivore; predator on small invertebrates (Conner Unpubl.)	Fresh areas only; mainly in swamps, ditches, bayous (Conner Unpubl.) (Douglas 1974)	Sparse; mainly limited above Chenier Plain	None
Bluntnose Darter				
<u>Etheostoma gracile</u> (Girard)	Carnivore; predator on small invertebrates (Braasch and Smith 1967)	Fresh areas only; mainly in ditches, small, sluggish streams (Conner Unpubl.)	Sparse; mainly limited above Chenier Plain (Conner Unpubl.)	None
Slough Darter				
<u>Etheostoma proeliare</u> (Hay)		Fresh areas only; mainly in swamps, bayous, small sluggish streams with logs and other forest debris (Conner Unpubl.)	Locally abundant in some freshwater areas (Conner Unpubl.)	None
Cypress Darter				
FAMILY POMATOMIDAE BLUEFISHES				
<u>Pomatomus saltatrix</u> (Linnaeus)	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in high salinity areas offshore (Gunter 1945) (Gunter 1938) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971)	Rare; occasionally caught by anglers in warm months (Conner Unpubl.)	Limited value as gamefish; mainly farther offshore
Bluefish				
FAMILY CARANGIDAE JACKS				
<u>Caranx hippos</u> (Linnaeus)	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline but mainly in high to moderate salinities (Gunter 1945) (Gunter 1938); lower bays, tidal pass; marsh lakes, bayous (Conner Unpubl.) (Herke 1966)	Moderately abundant during summer and fall (Tarbox 1974) (Gunter 1938) (Conner Unpubl.)	None
Crevaille Jack - Young				
<u>Chloroscombrus chrysurus</u> (Linnaeus)	See Nearshore Gulf entry (Appendix 6.3(30))	High to moderate salinity areas; lower bay, tidal passes (Gunter 1945) (Gunter 1938)	Moderately abundant, especially during summer (Tarbox 1974) (Conner Unpubl.)	None
Atlantic Bumper - Young				

continued

# Appendix 6.3(36). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Oligoplites saurus</u> (Bloch and Schneider) Leatherjacket - Young	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline; to freshwater, but mainly in moderate to high salinity areas; bay shores, bayous, marsh lakes (Conner Unpubl.)	Moderately abundant, during warm months (Tarbox 1974) (Perret 1971) (Conner Unpubl.)	None
<u>Selene vomer</u> (Linnaeus) Lookdown - Young	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly high salinity areas; lower bays, passes (Gunter 1945) (Gunter 1938) (Perret 1971) (Tarbox 1974)	Rare; occasionally taken in seines, trawls (Tarbox 1974) (Conner Unpubl.)	None
<u>Trachinotus carolinus</u> (Linnaeus) Florida Pompano - Young	See Nearshore Gulf entry (Appendix 6.3(30))	High salinity areas only; mainly outside of inland area (Bellinger and Avault, Jr. 1971) (Tarbox 1974) (Gunter Unpubl.)	Rare; occasionally taken in seines (Conner Unpubl.) in warm months	None
<u>Trachinotus falcatus</u> (Linnaeus) Permit - Young	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly outside inland area (Tarbox 1974) (Perret 1971)	Very rare; occasionally taken in tidal pass (Conner Unpubl.)	None
<u>Vomer setapinnis</u> (Mitchill) Atlantic Moonfish - Young	See Nearshore Gulf entry (Appendix 6.3(30))	High salinity areas only; lower bays, tidal pass (Gunter 1945) (Gunter 1938)	Sparse; occasionally taken in summer seines, trawls (Conner Unpubl.)	None
<b>FAMILY LUTJANIDAE</b> SNAPPERS				
<u>Lutjanus griseus</u> (Linnaeus) Gray Snapper - Young	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in areas of high salinity; near reefs; lower bays, passes; near vege- tation (Springer and Woodburn 1960) (Gunter 1945) (Gunter 1938)	Sparse; occasionally taken in seines (Conner Unpubl.)	None
<b>FAMILY LOBOTIDAE</b> TRIPLETAILS				
<u>Lobotes surinamensis</u> (Bloch) Tripletail - Young		Mainly high salinity areas; near cover (Vegetation, pillings) (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Rare; occasionally taken in seines (Conner Unpubl.)	Limited value as gamefish, mainly offshore

continued

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY GERREIDAE MOJARRAS				
<u>Eucinostomus argenteus</u> Baird and Girard	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in moderate to high salinities; widespread (Gunter 1945) (Gunter 1938) (Perret 1971)	Moderately abundant in shore seines during warm months (Conner Unpubl.)	None
Spotfin Mojarra - Young				
FAMILY POMADASYIDAE GRUNTS				
<u>Orthopristis chrysoptera</u> (Linnaeus)	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly high salinity areas; lower bays, tidal passes (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Moderately abundant during summer (Sabins 1973) (Conner Unpubl.)	None
Pigfish - Young				
FAMILY SPARIDAE PORCIES				
<u>Archosargus probatocephalus</u> (Walbaum)	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly in high salinity areas; lower bays, tidal passes; near pilings, reefs (Gunter 1945) (Gunter 1938) (Perret 1971) (Conner Unpubl.)	Moderately abundant, year-round; often taken by anglers, trammel nets (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	Minor value as commercial fish (trammel net); popular gamefish
Sheepshead - Adults				
Sheepshead - Young		Broadly euryhaline; wide-spread in protected waters, marsh bayous, canals, lakes (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Moderately abundant, mainly spring, early summer (Conner Unpubl.)	None
<u>Lagodon rhomboides</u> (Linnaeus)	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in high to moderate salinity areas; lower bays, passes, marsh lakes, bayous (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Moderately abundant, especially during warm months (Conner Unpubl.)	None
Pinfish - Adults				
Pinfish - Young		Broadly euryhaline; to freshwater; wide-spread along shores and in marsh bayous, ditches, ponds (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Abundant, late winter through summer (Sabins 1973) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	None

continued

FAMILY SCIAENIDAE  
DRUMSAplodinotus grunniens Rafinesque

Freshwater Drum - Adults

Freshwater Drum - Young

Bairdiella chrysura (Lacepede)

Silver Perch

Cynoscion arenarius Ginsbury

Sand Seatrout - Adults

Sand Seatrout - Young

Cynoscion nebulosus (Cuvier)

Spotted Seatrout

Larimus fasciatus Holbrook

Banded Drum

Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
Carnivore; predator (grazer on benthic invertebrates, especially mollusks, and fishes (Conner Unpubl.))	Fresh to brackish areas; especially river channel (Conner Unpubl.)	Locally abundant year-round (Conner Unpubl.)	Major component of inland hoop net catch. Minor gamefish
Omnivore; larvae predators on zooplankton; juveniles grazers on benthic invertebrates, detritus (Conner Unpubl.)	Larvae planktonic in river, upper bays, juveniles demersal, especially over soft mud/detritus bottoms (Conner Unpubl.)	Locally abundant, May through early fall (Conner Unpubl.)	None
See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline but mainly in moderate to high salinity; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Conner 1938) (Conner Unpubl.)	Locally abundant, especially as post-larval and early juveniles, April through early summer (Tarbox 1974) (Conner Unpubl.)	None
See Nearshore Gulf entry (Appendix 6.3(30))	Moderate to high salinity areas; widespread in bays, marsh lakes, bayous (Gunter 1945) (Gunter 1938) (Perret 1971)	Moderately abundant, declining in cold months (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Popular gamefish; minor component of inland trammel net catch; but see NC entry
Broadly euryhaline; widespread (Gunter 1945) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1938) (Conner Unpubl.); very small juveniles preferring protected marsh waters (Conner and Truesdale 1973) (Conner Unpubl.)	Abundant, April through early fall (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Tarbox 1974) (Conner Unpubl.)	None	None
Mainly moderate to high salinity areas; usually outside of inland areas (Gunter 1938) (Gunter 1945)	Sparse; occasionally taken in winter and spring trawls, seines (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Tarbox 1974) (Conner Unpubl.)	None	None

continued

# Appendix 6.3(36). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Leiostomus xanthurus</u> Lacépède Spot - Young	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in moderate to high salinity areas; postlarvae and early juveniles mainly in protected marsh waters; older juveniles widespread (Conner and Truesdale 1973) (Parker 1971) (Herke 1966)	Abundant, especially late spring through summer (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938) (Parker 1971)	See Nearshore Gulf entry
<u>Menticirrhus americanus</u> (Linnaeus) Southern Kingfish	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly in high salinity areas; lower bays, tidal passes; mainly in unprotected areas along shores (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1938) (Conner Unpubl.) (Wagner 1973)	Locally abundant, mainly during summer and fall (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1938) (Conner Unpubl.)	See Nearshore Gulf entry
<u>Micropteron undulatus</u> (Linnaeus) Atlantic Croaker				
<u>Pogonias cromis</u> (Linnaeus) Black Drum - Adults	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in high to moderate salinity areas; lower bays, passes; mainly near reefs (Bigelow and Schroeder 1948) (Gunter 1945) (Gunter 1938) (Pearson 1929) (Conner Unpubl.)	Moderately abundant, often taken by trammel nets, hook and line (Conner Unpubl.)	See Nearshore Gulf entry
<u>Sciaenops ocellata</u> (Linnaeus) Red Drum		Larvae mainly in offshore areas; postlarvae and juveniles occasionally entering bays, lower marshes (Pearson 1929) (Gunter 1938) (Conner Unpubl.)	Sparse; occasionally taken in seines (Conner Unpubl.)	None
<u>Stellifer lanceolatus</u> (Holbrook) Star Drum	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly in high salinity areas; lower bays, passes (Pearson 1929) (Gunter 1938) (Conner Unpubl.)	Sparse; occasionally taken in trawls (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	None

continued

# Appendix 6.3(36). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY EPHIPPIDAE SPADEFISHES				
<u>Chaetodipterus faber</u>	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly in high salinity areas; near tidal passes (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	Moderately abundant, locally, especially during summer and fall (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Tarbox 1974) (Conner Unpubl.)	None
FAMILY MUGILIDAE MULLET				
<u>Mugil cephalus</u> Linnaeus	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline; to freshwater; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Tarbox 1974) (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Abundant, year-round (Conner Unpubl.)	None
Striped Mullet - Adults				
Striped Mullet - Young	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline; to freshwater; widespread (Tarbox 1974) (Conner Unpubl.) as juveniles; larvae planktonic off- shore (Anderson 1958)	Abundant, especially late winter, early spring (Tarbox 1974) (Conner Unpubl.)	None
<u>Mugil curema</u> Valenciennes				
White Mullet - Adults		Broadly euryhaline; to freshwater; wide- spread (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Moderately abundant during warm months (Conner Unpubl.)	None
White Mullet - Young		Larvae planktonic offshore (Anderson 1957); juveniles broadly euryhaline but mainly in high salinity areas (Tarbox 1974) (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Moderately abundant, locally, late spring, early summer (Tarbox 1974) (Conner Unpubl.)	None
FAMILY POLYNEMIDAE THREADFINS				
<u>Polydactylus octonemus</u> (Girard)	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly in high salinity areas; open bay, passes (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Locally abundant; late spring through summer (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	None
Atlantic Threadfin				

# Appendix 6.3(36). Continued.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY BLENNIIDAE				
COMBTOOTH BLENNIES				
<u>Chasmodes bosquianus</u> (Lacepede)	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly high salinity areas; near reefs (Conner Unpubl.)	Rare; Occasionally taken in trawls (Conner Unpubl.)	None
Striped Blenny				
<u>Hypsoblennius hentzi</u>		Same as striped blenny	Same as striped blenny	None
Feather Blenny				
<u>Hypsoblennius ionthas</u> (Jordan and Gilbert)	See Nearshore Gulf entry (Appendix 6.3(30))	See above entry	See above entry	None
Freckled Blenny				
FAMILY ELEOTRIDAE				
SLEEPERS				
<u>Dormitator maculatus</u> (Block)	Carnivore; predator on fishes, macro-invertebrates (Conner Unpubl.)	Broadly euryhaline; mainly in ditches, canals, bayous (Conner Unpubl.) (Dawson 1969)	Moderately abundant, locally (Conner Unpubl.)	None
Fat Sleeper				
<u>Elotris pisonis</u> (Gmelin)	Same as fat sleeper	Broadly euryhaline; but mainly in fresh or brackish areas; canals, ditches (Dawson 1969) (Conner Unpubl.)	Very rare (Conner Unpubl.)	None
Spinycheek Sleeper				
FAMILY GOBIIDAE				
GOBIES				
<u>Evorthodus lyricus</u> (Girard)		Broadly euryhaline; but mainly in moderate to high salinity areas; ditches, canals, marsh ponds (Dawson 1969) (Conner Unpubl.)	Locally abundant (Conner Unpubl.)	None
Lyre Goby				

continued

# Appendix 6.3(36). Continued.

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Gobioideus brossonneti</u> Lacepede Violet Goby		Broadly euryhaline; but mainly in high salinity areas; open bays, bayous, marsh lakes (Dawson 1969) (Conner Unpubl.)	Sparse; occasionally taken in trawls (Conner Unpubl.)	None
<u>Gobionellus boleosoma</u> (Jordan and Gilbert) Darter Goby	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline; widespread (Dawson 1969) (Conner Unpubl.)	Locally abundant, especially during cold months (Conner Unpubl.)	None
<u>Gobionellus hastatus</u> Girard Sharptail Goby	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline; widespread (Dawson 1969) (Conner Unpubl.) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971)	Sparse; occasionally taken in trawls (Conner Unpubl.)	None
<u>Gobionellus shufeldti</u> (Jordan and Gilbert) Freshwater Goby		Broadly euryhaline, but mainly in fresh to brackish areas, where widespread (Dawson 1969) (Conner Unpubl.)	Locally abundant (Conner Unpubl.)	None
<u>Gobiosoma bosci</u> (Lacepede) Naked Goby	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, widespread (Dawson 1969) (Conner Unpubl.)	Locally abundant, on reefs, (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971), marsh ponds, ditches (Conner Unpubl.) (Reubsamen 1972)	None
<u>Gobiosoma robustum</u> Ginsburg Cod Goby	Carnivore; predator/ grazer on benthic invertebrates (Springer and Woodburn 1960)	Broadly euryhaline, but mainly in moderate to high salinities; mainly associated with vege- tation (Dawson 1969) (Conner Unpubl.)	Sparse; occasionally taken in seines (Conner Unpubl.)	None
<u>Microgobius gulosus</u> (Girard) Clown Goby	Omnivore; predator/ grazer on benthic invertebrates, algae (Springer and Woodburn 1960)	Broadly euryhaline, widespread; mainly near vegetation (Conner Unpubl.)	Sparse; occasionally taken in trawls, seines (Conner Unpubl.)	None
<u>Microgobius thalassinus</u> (Jordan and Gilbert) Green Goby		Broadly euryhaline, but mainly in high salinity areas; near vegetation (Dawson 1969) (Conner Unpubl.)	Very rare; occasionally taken in seines (Conner Unpubl.)	None

continued

# Appendix 6.3(36). Continued.

		<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY MICRODESMIDAE WORMFISHES					
<u>Microdesmus longipinnis</u> (Weymouth)			Mainly high salinity areas; burrowing in mud bottoms; nocturnally pelagic (Dawson 1969)	Very rare; occasionally taken in trawls (Conner Unpubl.)	None
Pink Wormfish					
FAMILY TRICHIURIDAE CUTLASSFISHES					
<u>Trichiurus lepturus</u> Linnaeus		See Nearshore Gulf entry (Appendix 6.3(30))	Mainly in high salinity areas; lower bays, passes (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Moderately abundant; often taken by trawls, hook and line (Conner Unpubl.)	Minor value as bait fish
Atlantic Cutlassfish					
FAMILY SCOMBRIDAE MACKERELS AND TUNAS					
<u>Scomberomorus maculatus</u> (Mitchill)		See Nearshore Gulf entry (Appendix 6.3(30))	see above entry (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Moderately abundant; locally, often taken in seines, trawls, during warm months (Conner Unpubl.)	Minor value as gamefish (mainly nearshore Gulf)
Spanish Mackerel					
FAMILY STROMATEIDAE BUTTERFISHES					
<u>Peprilus alepidotus</u> (Linnaeus)		See Nearshore Gulf entry (Appendix 6.3(30))	see above entry (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Locally abundant; often taken in seines during warm months (Conner Unpubl.)	None
Harvestfish					
<u>Peprilus burti</u> Fowler		See Nearshore Gulf entry (Appendix 6.3(30))	see above entry (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Locally abundant, especially late spring, early summer (Conner Unpubl.)	None
Gulf Butterfish					

continued

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
FAMILY TRIGLIDAE SEAROBINS				
<u>Prionotus rubio</u> Jordan		Mainly high salinity areas; lower bays, passes (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Sparse; occasionally taken in trawls (Conner Unpubl.)	None
Blackfin Searobin				
<u>Prionotus scitulus</u> Jordan and Gilbert	See Nearshore Gulf entry (Appendix 6.3 (30))	Mainly high salinity areas (Gunter 1945) (Robbins 1969)	Very rare; occasionally taken in trawls (Conner Unpubl.)	None
Leopard Searobin				
<u>Prionotus tribulus</u> Cuvier		Moderate to high salinity areas; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Moderately abundant; especially during cold months (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	None
Bighead Searobin				
FAMILY BOTHIDAE LEFT-EYE FLOUNDERS				
<u>Ancyloperetta ocellata</u> (Goode and Bean)	See Nearshore Gulf entry (Appendix 6.3 (30))	Limited to high salinity areas; lower bays, passes (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Rare; occasionally taken by trawl, hook and line (Conner Unpubl.)	None
Ocellated Flounder				
<u>Citharichthys macrops</u> Dresel	See Nearshore Gulf entry (Appendix 6.3 (30))	Limited to high salinity areas; lower bay, passes (Walls 1975) (Topp and Hoff, Jr. 1972) (Conner Unpubl.)	Rare; occasionally taken in trawls (Conner Unpubl.)	None
Spotted Whiff				
<u>Citharichthys spilopterus</u> Gunther		Broadly euryhaline; to brackish areas; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938) (Topp and Hoff, Jr. 1972)	Abundant, mainly late summer, early fall (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	None
Bay Whiff - Adults				
Bay Whiff - Young		Mainly in moderate to high salinity areas; widespread	Locally abundant; summer and fall (Conner Unpubl.)	None
<u>Etropus crossotus</u> Jordan and Gilbert		Mainly in moderate to high salinity areas; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938)	Moderately abundant, mainly late summer and fall (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	None
Fringed Flounder				

	Trophic Relations	Local Distribution	Relative and Seasonal Abundance	Economic Importance
<u>Paralichthys albigutta</u> Jordan and Gilbert	See Nearshore Gulf entry (Appendix 6.3(30))	Mainly in high salinity areas (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Conner 1938)	Sparse; occasionally taken by trawls, hook and line (Conner Unpubl.)	Minor value as
Gulf Flounder				
<u>Paralichthys lethostigma</u> Jordan and Gilbert				
Southern Flounder				
FAMILY SOLEIDAE SOLES				
<u>Achirus lineatus</u> (Linnaeus)	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in high to moderate salinity; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Conner 1938) (Conner Unpubl.)	Moderately abundant, late summer, fall (Conner Unpubl.)	None
Lined Sole				
<u>Trinectes maculatus</u> (Bloch and Schneider)	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline; to fresh water, but mainly in brackish to high salinity; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938) (Topp and Hoff, Jr. 1972) (Conner Unpubl.)	Abundant, mainly spring and summer (Norden 1966) (Conner Unpubl.)	None
Hogchoker - Adults				
Hogchoker - Young		Broadly euryhaline; to freshwater; widespread (Gunter 1945) (Gunter 1938) (Norden 1966) (Conner Unpubl.)	Abundant, spring (Conner Unpubl.)	None
FAMILY CYNOBLOSSIDAE TONGUEFISHES				
<u>Symphurus plagiatus</u> (Linnaeus)	See Nearshore Gulf entry (Appendix 6.3(30))	Broadly euryhaline, but mainly in high to moderate salinity; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Gunter 1945) (Gunter 1938) (Conner Unpubl.)	Abundant, mainly in spring (Perret, Barret, Latapie, Pollard, Mock, Adkins, Gaidry, and White 1971) (Conner Unpubl.)	None
Blackcheek Tonguefish				

continued

Appendix 6.3(36). Concluded.

	<u>Trophic Relations</u>	<u>Local Distribution</u>	<u>Relative and Seasonal Abundance</u>	<u>Economic Importance</u>
FAMILY BALISTIDAE TRIGGERFISHES AND FILEFISHES				
<u>Monacanthus hispidus</u> (Linnaeus)		Mainly high salinity; near tidal pass (Berry and Voegelé 1961)	Very rare (Conner Unpubl.)	None
Planehead Filefish		(Conner Unpubl.)		
FAMILY TETRAODONTIDAE PUFFERS				
<u>Sphoeroides parvus</u> Shipp and Yergert		Mainly in moderate to high salinities; widespread (Perret, Barret, Latapie, Pollard, Mock, Adkins, Caidry, and White 1971) (Gunter 1945)	Abundant, except during winter (Tarbox 1974) (Perret, Barret, Latapie, Pollard, Mock, Adkins, Caidry, and White 1971) (Conner Unpubl.)	None
Least Puffer		(Gunter 1938) (Shipp 1974) (Conner Unpubl.)		

#### Appendix 6.3(37). Dune stabilization practices.

Vegetation stabilizes dunes both internally by means of an extensive root system and externally by covering the surface material and trapping new material. Few plant species are able to survive in the harsh beach environment. To be successful, the species must be adaptable to abrasive and accumulating sand, exposure to full sunlight, high surface temperature, occasional inundation by salt water, salt spray, and drought. The plants that do survive are long-lived rhizomatous or stoloniferous perennials with extensive root systems, stems capable of rapid upward growth through accumulating sand, and tolerance of salt spray (Coastal Engineering Research Center 1973). In the Chenier Plain the panic beach grasses (*Panicum anarum*) and marsh grasses such as saltmeadow cordgrass and salt grass commonly invade the dunes.

Beach and dune management with vegetation is common in areas with significant dune structure. It can be divided into two parts: (1) stabilization and maintenance of naturally occurring dunes and (2) creation and stabilization of protective dunes where they are presently non-existent. The creation of stabilized dunes by vegetation is preferable to using mechanical structures.

Transplanting techniques are well developed and recommended for areas adjacent to the beach berm and for critical areas--sites subject to erosion (Coastal Engineering Research Center 1973). The vulnerability of a site to erosion determines the transplant spacing and culm number. The more vulnerable the area, the greater the number of culms per transplant and the closer the spacing required to insure successful stabilization. If a dense first year growth is desired, the transplant spacing should be less than 18 inches. Transplants on flat to moderate slopes may be accomplished by mechanical transplanters on a tractor, while steeper or irregular slopes must be planted by hand.

Plant spacing and sand movement must be considered in determining the overall dune morphology. If the plant spacing is dense and there is only a small amount of sand moved for trapping, the bulk of the sand will be contained along the seaward edge of the dune and a narrow-based dune is formed. If the plant spacing along the seaward edge is less dense given similar conditions of sand movement, the result will be a wider based dune. However, it should be recognized that the effectiveness of less dense plant spacing along the seaward edge of the dune is limited by the rate of plant growth. An additional factor is wind direction. In the case of onshore winds, the seaward edge of the dune traps nearly all of the beach sand. Offshore winds blowing over unvegetated areas landward of the dunes result in materials being trapped at the landward edge of the dune. The annual trapping capacity of panic grasses and sea oats is between 1 and 3 yd<sup>3</sup> per linear foot of beach, possibly exceeding this rate in some cases. It is

suggested (Coastal Engineering Research Center 1973) that dune growth in most areas is limited by the amount of sand transported off the beach by wind and waves rather than by the trapping capacity of the vegetation. Nonetheless, the vegetation is necessary to stabilize and maintain the dune.

Seeding is practical only when protection from drying and eroding winds can be provided by mulching or frequent irrigation, and is therefore not applicable to most beach areas (Coastal Engineering Research Center 1973). Beach grass seeds are not available from commercial sources and must be harvested from wild plants. Additions of nutrients to beach sands for plant establishment and maximum growth is essential (Gulf University Research Consortium 1972).

Loss of vegetation is due to overgrazing, man's destructive influence (e.g., dune buggies, construction), fire and storm surges. Successful dune construction appears to require total grazing restriction. Pathways to get to beaches trample vegetation. The loss of vegetation for whatever reason causes "blowouts", areas which have succumbed to the erosive effects of marine influences. Dunes are a low cost method of shore protection--their existence largely depends on the stabilizing and maintenance functions of vegetation.

# Appendix 6.3(38). Representative vertebrates of the Beach Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Bufo varilliceps</u> Gulf coast toad			
<u>Bufo woodhousei</u> Woodhouse's toad			
<u>REPTILES</u>			
<u>Chemidophorus sexlineatus</u> Six-lined racerunner			
<u>BIRDS</u>			
<u>Pelecanus erythrorhynchus</u> American white pelican	fish (Bent 1922)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Dichromanassa rufescens</u> Reddish egret		Mar.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	

continued

# Appendix 6.3(38). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Accipiter striatus</u> Sharp-shinned hawk	small birds, small mammals, frogs, lizards, insects (Bent 1937)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	Insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Petrochelidon pyrrhonota</u> Cliff swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Progne subis</u> Purple martin	mostly insects, some spiders (Bent 1942)	Feb.-Aug.; nesting Apr.-Jun. (Lowery 1974a)	
<u>Corvus ossifragus</u> Fish crow	carion, crustaceans, fish, bird eggs, insects, berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Anthus spinoletta</u> Water pipit		Nov.-Mar. (Lowery 1974a)	
<u>Quiscalus mexicanus</u> Great-tailed grackle	worms, insects, crustaceans, small fish, tadpoles, small lizards, eggs and young of birds, fruit, grain (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, tadpoles, frogs, small fish, spiders (Bent 1958)	Year-round (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	8% animal: mostly insects; 92% plant: seeds (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(38). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Pandion hallaetus</u> Osprey	bowfin, carp, catfish, eel, flounder, goldfish, menhaden, mullet, pickerel, shad, sunfish. No carrion (Bent 1937)	Sept.-Dec.; Feb.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco peregrinus</u> Peregrine falcon	primarily birds; also mammals, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Himantopus mexicanus</u> Black-necked stilt	99% animal: mostly insects; also crayfish, snails, tiny fish. 1% plant: seeds of aquatic and marsh plants (Bent 1927)	Mar.-Oct. (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Charadrius semipalmatus</u> Semipalmated plover	worms, small mollusks, crustaceans, insects (Bent 1929)	Mar.-May; Jul.-Nov. (Lowery 1974a)	
<u>Charadrius wilsonia</u> Wilson's plover	crustaceans, mollusks, insects, worms (Bent 1929)	Mar.-Sept. (Lowery 1974a)	
<u>Charadrius vociferus</u> Killdeer	98% insects and other animal matter (e.g., snails, crabs, crayfish); 2% plant: weed and grass seeds (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Charadrius melodus</u> Piping plover	marine worms, insects, mollusks, eggs of marine animals (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Charadrius alexandrinus</u> Snowy plover	marine worms, small crustaceans, other small animals (Bent 1929)	Mar.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Pluvialis dominica</u> American golden plover	almost entirely insects; also small mollusks and	Mar.-May (Lowery 1974a)	

Continued

# Appendix 6.3(38). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Pluvialis squatarola</u> Black-bellied plover	marine worms, small mollusks, crustaceans, insects, some plant material (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Limosa fedoa</u> Marbled godwit	insects, mollusks (Bent 1927)	Oct.-Nov. (Lowery 1974a)	
<u>Numenius americanus</u> Long-billed curlew	worms, crustaceans, snails, insects, toads (Bent 1929)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Tringa melanoleuca</u> Greater yellowlegs	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa flavipes</u> Lesser yellowlegs	mostly insects; also small crustaceans, small fish, worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Carotrophorus semipalmatus</u> Willet	worms, insects, small crabs, small mollusks, small fish, grasses, tender roots, seeds, rice (Bent 1929)	Year-round (Lowery 1974a)	
<u>Arenaria interpres</u> Ruddy turnstone	small crustaceans, small mollusks, insects (Bent 1929)	Mar.-May, Aug.-Oct. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris canutus</u> Red knot	small mollusks and crustaceans, marine worms, grasshoppers (Bent 1927)	Mar.-Jun.; Jul.-Nov. (Lowery 1974a)	
<u>Calidris alba</u> Sanderling	sand fleas, shrimp and other small crustaceans, small mollusks, worms, insects, some seeds (Bent 1927)	Aug.-May (Lowery 1974a)	
<u>Calidris pusilla</u> Semipalmated sandpiper	small mollusks, worms, insects, traces of plant material (Bent 1927)	Apr.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug.-May (Lowery 1974a)	

continued

# Appendix 6.3(38). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris fuscicollis</u> White-rumped sandpiper	78% animal: snails, marine worms; 22% plant: seeds (Bent 1927)	Apr.-Jun (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Larus argentatus</u> Herring gull	dead fish and other detritus; live fish, crustaceans, mollusks, echinoderms, worms, insects (Bent 1921)	Nov.-Apr. (Lowery 1974a)	
<u>Larus delawarensis</u> Ring-billed gull	refuse, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Larus atricilla</u> Laughing gull	mostly small fish; also eggs of other seabirds, refuse (Bent 1921)	Year-round (Lowery 1974a)	
<u>Larus philadelphia</u> Bonaparte's gull	small fish, crustaceans, marine worms, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	
<u>Sterna forsteri</u> Forster's tern	insects, floating carrion (Bent 1921)	Year-round (Lowery 1974a)	
<u>Sterna hirundo</u> Common tern	almost wholly small fish; also shrimp and aquatic insects (Bent 1921)	Sept.-May (Lowery 1974a)	
<u>Sterna albifrons</u> Least tern	small fish; some crustaceans and insects (Bent 1921)	Apr.-Aug. (Lowery 1974a)	
<u>Sterna maxima</u> Royal tern	almost wholly small fish; also crabs, shrimp (Bent 1921)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(38). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sterna sandvicensis</u> Sandwich tern	almost wholly small fish; also shrimp, squid (Bent 1921)	Apr.-Aug. (Lowery 1974a)	
<u>Sterna caspia</u> Caspian tern	almost wholly small fish; also shrimp and other surface-swimming aquatic life (Bent 1921)	Year-round (Lowery 1974a)	
<u>Chlidonias niger</u> Black tern	small fish, insects (Bent 1921)	Apr.-Sept. (Lowery 1974a) (non-breeding)	
<u>Rynchops niger</u> Black skimmer	small fish; small crustaceans (Bent 1921)	Year-round (Lowery 1974a)	
<u>Athene cunicularia</u> Burrowing owl	insects, small mammals, birds, lizards, snakes, amphibians, fish, myriapods, crayfish (Bent 1937)	Oct.-Mar. (Lowery 1974a)	
<u>Asio flammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1975)
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1975)
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Dasypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	

Appendix 6.3(39). Plant species dominant on spoil banks in Rockefeller  
Wildlife Refuge in the Chenier Plain (Spindler and Noble 1974).

Species	% of vegetative cover	average % ground cover	frequency (%)
<i>Spartina patens</i>	36.0	29.0	73.0
<i>Baccharis balimifolia</i>	34.5	27.7	81.1
<i>Phragmites communis</i>	4.4	3.2	8.5
<i>Eupatorium serotinum</i>	3.0	2.5	22.6
<i>Vigna luteola</i>	3.0	2.4	61.1
<i>Kosteletskyia virginica</i>	1.9	1.5	24.4
<i>Scirpus robustus</i>	1.4	1.2	20.0
<i>Rivina humilis</i>	1.3	1.0	7.4
<i>Phytolacca americana</i>	1.2	1.0	11.5
<i>Ipomoea sagittata</i>	1.2	1.0	17.4
<i>Mikania scandens</i>	1.1	0.9	9.3
<i>Verbena bonariensis</i>	0.9	0.7	5.6
<i>Eupatorium capillifolium</i>	0.8	0.7	6.3
<i>Panicum hemitomon</i>	0.7	0.6	5.2
<i>Iva frutescens</i>	0.7	0.5	5.6
<i>Chenopodium ambrosioides</i>	0.6	0.5	5.2
<i>Alternanthera philoxeroides</i>	0.6	0.5	7.0
<i>Daubentonia texana</i>	0.5	0.4	3.3
<i>Andropogon virginicus</i>	0.5	0.4	4.1
<i>Polygonum punctatum</i>	0.4	0.4	4.1
<i>Eclipta alba</i>	0.4	0.3	5.9
<i>Spartina cynosuroides</i>	0.4	0.3	3.0
<i>Ambrosia artemisiifolia</i>	0.4	0.3	3.0
<i>Distichlis spicata</i>	0.4	0.3	5.2
<i>Cyperus odoratus</i>	0.4	0.3	4.0
<i>Eichhornia crassipes</i>	0.3	0.3	3.7
Unknown	0.3	0.2	4.5
<i>Solidago</i> sp.	0.3	0.2	2.6
<i>Pluchea purpurascens</i>	0.3	0.2	4.4
<i>Cucumis melo</i>	0.3	0.2	3.0
<i>Cyperus</i> sp.	0.2	0.2	3.3
<i>Echinochloa crusgalli</i>	0.2	0.1	1.5
<i>Bacopa monnieri</i>	0.2	0.1	2.6
<i>Sesbania exaltata</i>	0.1	0.1	1.1
<i>Euphorbia supina</i>	0.1	0.1	1.9
<i>Rumex chrysocarpus</i>	0.1	0.1	1.9
<i>Echinochloa walteri</i>	0.1	0.1	1.9
<i>Melothria pendula</i>	0.1	0.1	1.5
<i>Oxalis</i> sp.	0.1	0.1	1.5
<i>Setaria magna</i>	0.1	0.1	1.1
<i>Senecio glabellus</i>	<0.05	<0.05	0.7
<i>Erigeron bonariensis</i>	<0.05	<0.05	0.7
<i>Acnida cuspidata</i>	<0.05	<0.05	0.7
<i>Lippia nodiflora</i>	<0.05	<0.05	0.7
<i>Ophioglossum petiolatum</i>	<0.05	<0.05	0.7
<i>Physalis angulata</i>	<0.05	<0.05	0.7
<i>Paspalum distichum</i>	<0.05	<0.05	0.7
<i>Ceratophyllum demersum</i>	<0.05	<0.05	0.7
<i>Cyperus erythrorhizos</i>	<0.05	<0.05	0.7
<i>Heliotropium curassavicum</i>	<0.05	<0.05	1.1
<i>Erechtites hieracifolia</i>	<0.05	<0.05	0.4
<i>Scirpus californicus</i>	<0.05	<0.05	0.4
<i>Ammannia coccinea</i>	<0.05	<0.05	0.4
<i>Cuscuta cuspidata</i>	<0.05	<0.05	0.4
<i>Carduus</i> sp.	<0.05	<0.05	0.4
<i>Stachys</i> sp.	<0.05	<0.05	0.4
LEMNACEAE	<0.05	<0.05	0.4
<i>Iris</i> sp.	<0.05	<0.05	0.4
<i>Scirpus americanus</i>	<0.05	<0.05	0.4
<i>Potamogeton</i> sp.	<0.05	<0.05	0.4
<i>Solidago tenuifolia</i>	<0.05	<0.05	0.4
<i>Ludwigia leptocarpa</i>	<0.05	<0.05	0.4
<i>Setaria geniculata</i>	<0.05	<0.05	0.4

Total % of ground covered by vegetation = 80.5%

Appendix 6.3(40). Representative vertebrates of the Ridge (Chenier, Levee, and Spoil Bank) Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Ambystoma opacum</u>			
Marbled salamander			
<u>Notophthalmus viridescens</u>			
Central newt			
<u>Scaphiopus holbrookii</u>			
Hurter's spadefoot toad			
<u>Bufo vallericeps</u>			
Gulf coast toad			
<u>Bufo woodhousei</u>			
Woodhouse's toad			
<u>Hyla crucifer</u>			
Spring peeper			
<u>Hyla cinerea</u>	Insects (Wright and Wright 1949)		
Green tree frog			
<u>Hyla squirella</u>			
Squirrel tree frog			
<u>Hyla versicolor</u> & <u>H. chrysocelis</u>			
Gray tree frog			
<u>Pseudacris streckeri</u>			
Upland chorus frog			
<u>Rana clamitans</u>			
Bronze frog			
<u>Rana sphenoccephala</u>			
Southern leopard frog			
<u>Gastrophryne carolinensis</u>			
Eastern narrow-mouthed toad			

continued

# Appendix 6.3(40). Continued.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>REPTILES</u>			
<u>Kinosternon subrubrum</u> Mississippi mud turtle	insects, small snails (Carr 1952)		
<u>Terrapene carolina</u> Three-toed box turtle	omnivorous in captivity (Carr 1952)		
<u>Terrapene ornata</u> Ornate box turtle	insects and other small animals (Carr 1952)		
<u>Anolis carolinensis</u> Green anole	insects, spiders (Smith 1946)		
<u>Onemidophorus sexlineatus</u> Six-lined racerunner	mostly insects; some other arthropods, snails (Smith 1946)		
<u>Eumeces fasciatus</u> Five-lined skink	earthworms, spiders, insects, some young lizards and mice (Smith 1946)		
<u>Eumeces laticeps</u> Broad-headed skink	insects (Smith 1946)		
<u>Lelopisma laterale</u> Ground skink	small insects, spiders, millepedes, pillbugs, sowbugs (Smith 1946)		
<u>Ophisaurus attenuatus</u> Slender glass lizard	insects, spiders, other arthropods, snails (Smith 1946)		
<u>Coluber constrictor</u> Racer	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
<u>Elaphe guttata</u> Corn snake	mice lizards, birds and their eggs, tree frogs (Wright and Wright 1957)		
<u>Elaphe obsoleta</u> Texas rat snake	worms, insects, fish, amphibians, reptiles, birds, mammals (Wright and Wright 1957)		
<u>Heterodon platyrhinos</u> Eastern hognose snake			

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Lampropeltis calligaster</u> Prairie kingsnake	fish, amphibians, reptiles, small mammals (Wright and Wright 1957)		
<u>Lampropeltis dolliata</u> Louisiana milk snake	lizards, small snakes (Wright and Wright 1957)		
<u>Lampropeltis petulus</u> Speckled king snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Natrix cycloplon</u> Green water snake	Gambusia (77.6%); other fish (18.6%); tadpoles (3.5%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia fasciata confluens</u> Broad-banded water snake	fish (8.69%); frogs and toads (6.4%); tadpoles (4.8%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia fasciata clarki</u> Gulf salt marsh snake			
<u>Nerodia erythrogaster</u> Yellow-bellied water snake	fish (65.3%); frogs and toads (27.0%); tadpoles (7.5%) (Mushinsky and Hebrard 1976)	Apr.-Aug. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Nerodia rhombifera</u> Diamondback water snake	fish (92.7%); frogs and toads (1.0%); tadpoles (6.1%) (Mushinsky and Hebrard 1976)	Mar.-Oct. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Ophedrys aestivus</u> Rough green snake	insects, spiders, snails, frogs, fish (Wright and Wright 1957)		
<u>Regina grahami</u> Graham's crayfish snake	crayfish (100%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard, unpublished manuscript)	
<u>Regina rigida</u> Glossy crayfish snake	<u>Siren</u> , fish, crayfish (Wright and Wright 1957)		
<u>Storeria dekayi</u> Brown snake	earthworms, snails, insects, small frogs, fish (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Thamnophis sirtalis</u> Garter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Virginia striatula</u> Rough earth snake	earthworms, mollusks, insects, sowbugs, small anurans, small lizards (Wright and Wright 1957)		
<u>Micrurus fulvius</u> Eastern coral snake	lizards, small snakes (Wright and Wright 1957)		
<u>Agkistrodon contortrix</u> Southern copperhead	frogs, small rodents, small birds (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		
<u>Sistrurus miliarius</u> Pygmy rattlesnake	mice, insects (Wright and Wright 1957)		
<u>BIRDS</u>			
<u>Phalacrocorax auritus</u> Double-crested cormorant	mostly fish; rarely crustaceans, mollusks, eel grass (Bent 1922)	Sept.-Apr.	"Blue List" Nat. Aud. Soc. (1976)
<u>Phalacrocorax olivaceus</u> Olivaceous cormorant		Year-round	
<u>Anhinga anhinga</u> Anhinga	fish, leeches, shrimp, crayfish, insects, salamanders, frogs, young turtles and alligators, snakes (Bent 1922)	Mar.-Oct. (Lowery 1974a)	
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974a)	Year-round (Lowery 1974a)	Invaded La. in 1955
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Mycteria americana</u> Wood stork	fish, aquatic reptiles, insects (Bent 1926)	Jun.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Plegadis falcinellus</u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	
<u>Plegadis chichi</u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Eudocimus albus</u> White ibis	mostly crayfish; also other crustaceans, slugs, snails, small snakes, insects (Bent 1926)	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Ajaia ajaja</u> Roseate spoonbill	fish, shrimp, insects (Bent 1926)	Year-round (Lowery 1974a)	
<u>Aix sponsa</u> Wood duck	90% plant: aquatic plants, cypress cones and kalls, seeds, duckweed; 10% animal: mostly insects (Bent 1923)	Year-round (Lowery 1974a)	
<u>Cathartes aura</u> Turkey vulture	carion (Bent 1937)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Coragyps atratus</u> Black vulture	chiefly carrion, also young herons in rookeries (Bent 1937)	Year-round (Lowery 1974a)	
<u>Elanoides forficatus</u> Swallow-tailed kite	snails, insects, frogs, snakes (Lowery 1974a)	Mar.-Aug. (Lowery 1974a)	
<u>Ictinia mississippiensis</u> Mississippi kite	mostly insects, some small frogs, lizards, snakes (Lowery 1974a)	Apr.-Oct. (Lowery 1974a)	
<u>Accipiter striatus</u> Sharp-shinned hawk	small birds, small mammals, lizards, frogs, insects (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Accipiter cooperi</u> Cooper's hawk	teal, snipe, screech owl, quail, doves, hawks, flickers, passerines; rabbits, opossum, skunks, rodents, reptiles, frogs, insects (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Buteo jamaicensis</u> Red-tailed hawk	almost wholly small rodents (Lowery 1974a)	Oct.-Mar. (Lowery 1974a)	
<u>Buteo lineatus</u> Red-shouldered hawk	earthworms, snails, amphibians, reptiles, birds, mammals (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Buteo platypterus</u> Broad-winged hawk	earthworms, insects, crayfish, anurans, reptiles, birds, mammals (Bent 1937)	Apr.-Sept. (Lowery 1974a)	
<u>Buteo swainsoni</u> Swainson's hawk	mostly small mammals and insects (Bent 1937)	Accidental (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Pandion haliaetus</u> Osprey	bowfin, carps, catfish, eel, flounder, goldfish,	Sept.-Dec.; Feb.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Caracara cheriway</u> Audobon's caracara	mostly carrion; also worms, insects, crustaceans, fish, amphibians, reptiles, small mammals (Bent 1937)	Year-round at Gum Cove, Cameron Par. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco peregrinus</u> Peregrine falcon	primarily birds; also mammals, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Falco sparverius</u> American kestrel	insects, amphibians, reptiles, birds, mammals (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Cotinus virginianus</u> Kobwhite	84% plant: seeds, fruit, leaves, buds, tubers; 16% animal: mollusks, crustaceans, spiders, insects, frogs (Bent 1932)	Year-round (Lowery 1974a)	
<u>Francolinus francolinus</u> Black francolin	62% animal: mollusks, insects, spiders; 38% plant: tubers, legume seeds, green leaves	Year-round (Lowery 1974a)	Introduced at Gum Cove, Cameron Par. (Lowery 1974)
<u>Charadrius wilsonia</u> Wilson's plover	crustaceans, mollusks, insects, worms (Bent 1929)	Mar.-Sept. (Lowery 1974a)	
<u>Charadrius vociferus</u> Killdeer	98% insects and other animal matter (e.g., snails, crabs, crayfish); 2% plant: weed and grass seeds (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Philohela minor</u> American woodcock	earthworms, grubs, slugs, insects and their larvae (Bent 1927)	Oct.-Feb. (Lowery 1974a)	
<u>Zenaida macroura</u> Mourning dove	seeds (Bent 1932)	Year-round (Lowery 1974a)	
<u>Columbina passerina</u> Common ground dove	small seeds, berries, insects (Bent 1932)	Oct.-May (Lowery 1974a)	
<u>Coccyzus americanus</u> Yellow-billed cuckoo	mostly caterpillars-also other insects, wild berries, frogs, lizards (Bent 1940)	Apr.-Oct. (Lowery 1974a)	
<u>Coccyzus erythrophthalmus</u> Black-billed cuckoo	similar to above; also small mollusks, fish, aquatic larvae, fruits and berries, bird eggs and young (Bent 1940)	Apr.-May; Aug.-Oct. (Lowery 1974a)	
<u>Crotophaga sulcirostris</u> Groove-billed ani	mostly insects, also fruits and berries (Bent 1940)	Oct.-Apr. (Lowery 1974a)	
<u>Tyto alba</u> Barn owl	small mammals, birds, insects, frogs (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Otus asio</u> Common screech owl	worms, arthropods, snails, fish, amphibians, reptiles, birds, mammals (Bent 1937)	Year-round; nesting in Mar.-Apr. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Catharus fuscescens</u> Veery	60% animal: insects, spiders, sowbugs, snails; 40% plant: fruits and berries (Bent 1949)	Apr.-May (Lowery 1974a)	
<u>Sialia sialis</u> Eastern bluebird	68% animal: insects, spiders, myriapods; 32% plant: largely wild fruit (winter) (Bent 1949)	Year-round (Lowery 1974a)	
<u>Polioptila caerulea</u> Blue-gray gnatcatcher	insects, spiders (Bent 1949)	Mar.-Oct. (Lowery 1974a)	
<u>Regulus satrapa</u> Golden-crowned kinglet	almost wholly insects (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Regulus calendula</u> Ruby-crowned kinglet	94% animal: insects, spiders, pseudoscorpions; 6% plant: fruit, berries, weed seeds (Bent 1949)	Oct.-Apr. (Lowery 1974a)	
<u>Bombycilla cedrorum</u> Cedar waxwing	berries (Lowery 1974)	Nov.-Apr. (Lowery 1974a)	
<u>Anthus ludovicianus</u> Loggerhead shrike	68% insects, 28% small vertebrates, 4% spiders (Bent 1950)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sturnus vulgaris</u> European starling	57% animal: mostly insects, also worms, snails, spiders, millipedes, sowbugs, catterpillars; 43% plant: fruits, berries, grain, seeds (Bent 1950)	Year-round (Lowery 1974a)	Introduced
<u>Vireo griseus</u> White-eyed vireo	90% animal: insects, spiders; 10% plant: berries and fruits (Bent 1950)	Mar.-Oct. (Lowery 1974a)	
<u>Vireo flavifrons</u> Yellow-throated vireo	98% animal: mostly insects, some spiders; 2% plant: wild fruits and berries (Bent 1950)	Mar.-Sept. (Lowery 1974a)	
<u>Vireo solitarius</u> Solitary vireo	(January) 24% plant: wild fruits and berries; 76% animal: mostly insects (Bent 1950)	Oct.-Apr. (Lowery 1974a)	
<u>Vireo olivaceus</u> Red-eyed vireo	86% animal: almost wholly insects; 14% plant: wild fruits and berries (Bent 1950)	Apr.-Oct. (Lowery 1974a)	
<u>Vireo philadelphicus</u> Philadelphia vireo	93% animal: mostly insects, some spiders; 7% plant: wild fruits and berries (Bent 1950)	Aug.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Bubo virginianus</u> Great horned owl	mostly mammals; also birds, reptiles, amphibians, fish,	Year-round; nesting in Dec.-Jan. (Lowery 1974a)	
<u>Strix varia</u> Barred owl	mammals, birds, reptiles, amphibians, fish, crayfish, insects, spiders (Bent 1937)	Year-round; nesting in February (Lowery 1974a)	
<u>Caprimulgus carolinensis</u> Chuck-will's-widow	mostly insects; some small birds (Bent 1940)	Apr.-May; Aug.-Oct. (Lowery 1974a)	
<u>Caprimulgus vociferus</u> Whip-poor-will	entirely insects (Bent 1940)	Mar.-Apr. (Lowery 1974a)	
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Onaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Archilochus colubris</u> Ruby-throated hummingbird	mostly insects, also nectar (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Megasceryle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Colaptes auratus</u> Common flicker	61% animal: ants and other insects 39% plant: fruits and berries (Bent 1949)	Year-round (Lowery 1974a)	
<u>Dryocopus pileatus</u> Pileated woodpecker	73% animal: ants, beetles; 27% plant: wild fruits and berries (Bent 1939)	Year-round (Lowery 1974a)	
<u>Melanerpes carolinus</u> Red-bellied woodpecker	26% animal: ants and other insects, spiders, frogs 74% plant: grain, nuts, fruits, berries (Bent 1939)	Year-round (Lowery 1974a)	
<u>Melanerpes erythrocephalus</u> Red-headed woodpecker	50% animal: insects, spiders, myriapods 47% plant: fruits, berries, nuts (Bent 1939)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sphyrapicus varius</u> Yellow-bellied sapsucker	cambium, bast, sap, wild fruits; ants, beetles, wasps, other insects (Bent 1939)	Sept.-Mar. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Nuttallornis borealis</u> Olive-sided flycatcher	100% insects (Bent 1942)	Aug.-Sept. (Lowery 1974a)	
<u>Pyrocephalus rubinus</u> Vermilion flycatcher	insects (Bent 1942)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Stelgidopteryx ruficollis</u> Rough-winged swallow	insects (Bent 1942)	Mar.-Nov.	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Petrochelidon pyrrhonota</u> Clif swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Progne subis</u> Purple martin	mostly insects, some spiders (Bent 1942)	Feb.-Aug.; nesting Apr.-Jun. (Lowery 1974a)	
<u>Cyanocitta cristata</u> Blue jay	24% animal: insects, spiders, myriapods, small fish, amphibians, birds, mice; 76% plant: grain, berries, mast (Bent 1946)	Year-round (Lowery 1974a)	
<u>Corvus brachyrhynchos</u> Common crow	28% animal: insects, spiders, snails, crustaceans, amphibians, birds, mammals, carrion; 72% plant: grain, beans, fruit, berries (Bent 1946)	Year-round (Lowery 1974a)	
<u>Corvus ossifragus</u> Fish crow	carrion, crustaceans, fish, bird eggs, insects; berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Parus carolinensis</u> Carolina chickadee	72% animal: insects, spiders; 28% plant: seeds, berries (Bent 1946)	Year-round (Lowery 1974a)	
<u>Parus bicolor</u> Tufted titmouse	67% animal: insects, snails; 33% plant: fruit, berries, mast (Bent 1946)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Picoides villosus</u> Hairy woodpecker	78% animal: insects, spiders, millipedes; 22% plant: fruit, berries, grain, cambium, mast (Bent 1939)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Picoides pubescens</u> Downy woodpecker	76% animal: insects 24% plant: mostly wild fruit (Bent 1939)	Year-round (Lowery 1974a)	
<u>Tyrannus tyrannus</u> Eastern kingbird	mostly insects; also small fruits and berries (Bent 1942)	Mar.-Sept. (Lowery 1974a)	
<u>Tyrannus verticalis</u> Western kingbird	91% animal: insects; 9% plant: seeds (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Muscivora forficata</u> Scissor-tailed flycatcher	96% animal: insects; 4% plant: small fruits and berries, a few seeds (Bent 1942)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Myiarchus cinerascens</u> Great crested flycatcher	94% animal: insects, spiders; 6% plant: small wild fruits and berries (Bent 1942)	Apr.-Sept. (Lowery 1974a)	
<u>Sayornis phoebe</u> Eastern phoebe	89% animal: insects, arachnids, millipedes 11% plant: fruit, seeds (Bent 1942)	Oct.-Mar. (Lowery 1974a)	
<u>Empidonax flaviventris</u> Yellow-bellied flycatcher	97% animal: insects, spiders; 3% plant: small fruits, some seeds (Bent 1942)	Aug.-Oct. (Lowery 1974a)	
<u>Empidonax virens</u> Acadian flycatcher	97% animal: insects, spiders, millipedes; 3% plant: fruits and berries (Bent 1942)	Apr.-Oct. (Lowery 1974a)	
<u>Empidonax traillii</u> Willow flycatcher	96% animal: insects, spiders, millipedes; 4% plant: fruits, berries, seeds (Bent 1942)	Aug.-Sept. (Lowery 1974a)	
<u>Empidonax alnorum</u> Alder flycatcher		Aug.-Sept. (Lowery 1974a)	
<u>Empidonax minimus</u> Least flycatcher	98% animal: insects, spiders; 2% plant: fruits, berries, seeds (Bent 1942)	Sept.-Oct. (Lowery 1974a)	
<u>Contopus virens</u> Eastern wood pewee	99% animal: insects, spiders, millipedes; 1% plant: berries (Bent 1942)	Mar.-Oct. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Certhia familiaris</u> Brown creeper	mostly insects, also spiders, pseudoscorpions (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Troglodytes aedon</u> Northern house wren	98% arthropods; 2% plant material (Bent 1948)	Sept.-Apr. (Lowery 1974a)	
<u>Troglodytes troglodytes</u> Winter wren	almost wholly insects and spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Thryothorus ludovicianus</u> Carolina wren	94% animal: insects, spiders, millipedes, sowbugs, snails, lizards, treefrogs, snakes; 6% plant: fruit, seeds, berries, mast (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus platensis</u> Sedge wren	insects, spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Mimus ployglottos</u> Northern mockingbird	48% animal: insects, spiders, crayfish, sowbugs, snails, lizards, small snakes; 52% plant: fruits and berries (Bent 1948)	Year-round (Lowery 1974a)	
<u>Dumetella carolinensis</u> Gray catbird	44% animal: insects, spiders; 56% plant: fruit and berries (Bent 1948)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Toxostoma rufum</u> Brown thrasher	63% animal: worms, snails, crayfish, insects, amphibians, lizards; 37% plant: fruits, berries (Bent 1948)	Year-round (Lowery 1974a)	
<u>Turdus migratorius</u> American robin	40% animal: worms, mollusks, insects 60% plant: berries and fruits (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Hyllocichla ustulata</u> Wood thrush	62% animal: insects, spiders, earthworms 38% plant: berries (Bent 1949)	Mar.-Oct. (Lowery 1974a)	
<u>Catharus guttatus</u> Hermit thrush	wild fruits and berries (winter) (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Catharus ustulata</u> Swinson's thrush	64% animal: insects, spiders, millipedes, snails, sowbugs, worms; 36% plant: fruits, berries, seeds (Bent 1949)	Apr.-May (Lowery 1974a)	
<u>Catharus minimus</u> Gray-cheeked thrush	75% animal: insects, spiders, other animals; 25% sowbugs, worms; 36% plant: fruits, berries, seeds (Bent 1949)	Apr.-May (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Vireo gilvus</u> Warbling vireo	mostly insects, some plant material (Bent 1950)	Apr.-Aug. (Lowery 1974a)	
<u>Mniotilta varia</u> Black-and-white warbler	almost entirely insects and spiders, trace of plant material (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Vermivora chrysoptera</u> Golden-winged warbler	insects, spiders (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Vermivora pinus</u> Blue-winged warbler	insects, spiders (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Vermivora peregrina</u> Tennessee warbler	insects, spiders, snails, trace of plant material (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Vermivora celata</u> Orange-crowned warbler	berries, fruits, insects (winter) (Bent 1953)	Nov.-Apr. (Lowery 1974a)	
<u>Vermivora ruficapilla</u> Nashville warbler	mostly insects (Bent 1953)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Parula americana</u> Northern parula warbler	insects, spiders (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Dendroica petechia</u> Yellow warbler	almost wholly insects, also spiders, myriapods (Bent 1953)	Apr.-May; Jul.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Dendroica pensylvanica</u> Chestnut-sided warbler	almost wholly insects; some seeds and berries (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica caerulescens</u> Cerulean warbler	insects (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Dendroica dominica</u> Yellow-throated warbler	insects, spiders (Bent 1953)	Mar.-Aug. (Lowery 1974a)	
<u>Dendroica virens</u> Black-throated green warbler	insects, spiders (Bent 1953)	Apr.-May; Sept.-Nov. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Dendroica discolor</u> Prairie warbler	100% insects, spiders (Bent 1953)	Mar.-Aug. (Lowery 1974a)	
<u>Dendroica fusca</u> Blackburnian warbler	mostly insects (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica magnolia</u> Magnolia warbler	almost wholly insects (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Dendroica coronata</u> Myrtle warbler	berries, seeds, insects (winter) (Bent 1953)	Oct.-Apr. (Lowery 1974a)	
<u>Dendroica palmarum</u> Palm warbler	mostly insects; some seeds and berries (Bent 1953)	Oct.-Apr. (Lowery 1974a)	
<u>Dendroica striata</u> Black? ll warbler	almost wholly insects; some seeds and berries (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica castanea</u> Bay-breasted warbler	almost wholly insects; some fruit (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Setophaga ruticilla</u> American redstart	mostly insects (Bent 1953)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Seiurus aurocapillus</u> Oven bird	earthworms, mollusks, myriapods, spiders, insects, seeds, small fruit (Bent 1953)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Seiurus noveboracensis</u> Northern waterthrush	almost wholly animal: small worms, minnows, crustaceans, mollusks, insects; a few seeds (Bent 1953)	Aug.-Oct. (Lowery 1974a)	
<u>Seiurus motacilla</u> Louisiana waterthrush	small mollusks, small fish, insects, some seeds (Bent 1953)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Limothlypis swainsoni</u> Swainson's warbler	insects, spiders (Bent 1953)	Mar.-Sept. (Lowery 1974a)	
<u>Helminthos vermivorus</u> Worm-eating warbler	insects, spiders (Bent 1953)	Apr.-May; Jul.-Aug. (Lowery 1974a)	
<u>Protonotaria citrea</u> Prothonotary warbler	insects, spiders, small mollusks (Bent 1953)	Mar.-Sept. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Geothlypis formosa</u> Kentucky warbler	insects, spiders, some berries (Bent 1953)	Apr.-Sept. (Lowery 1974a)	
<u>Geothlypis philadelphia</u> Mourning warbler	beetles, spiders (Bent 1953)	Aug.-Oct. (Lowery 1974a)	
<u>Wilsonia citrina</u> Hooded warbler	insects (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Wilsonia pusilla</u> Wilson's warbler	insects; occasionally fruit (Bent 1953)	Sept.-Oct. (Lowery 1974a)	
<u>Wilsonia canadensis</u> Canada warbler	insects, spiders (Bent 1953)	Sept. (Lowery 1974a)	
<u>Icteria virens</u> Yellow-breasted chat	insects, wild fruits and berries (Bent 1953)	Apr.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Dolichonyx orizivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: fruit, grain, weed seeds; 27% animal: mostly insects, some spiders and myriapods (Bent 1953)	Year-round (Lowery 1974a)	
<u>Icterus spurius</u> Orchard oriole	mostly insects, spiders; some berries, flowers (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Icterus galbula</u> Baltimore oriole	1/3 caterpillars; also beetles, ants, parasitic wasps, bugs, grasshoppers, spiders, snails	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Euphagus carolinus</u> Rusty blackbird	53% animal: insects, spiders, myriapods, crustaceans, amphibians, snails, small fish; 47% plant: grain, seeds, fruit, mast (Bent 1958)	Nov.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Euphagus cyanocephalus</u> Brewer's blackbird	32% animal: insects, spiders, sowbugs, snails, egg shells; 68% plant: berries, grain, weed seeds (Bent 1958)	Nov.-Mar. (Lowery 1974a)	
<u>Quiscalus mexicanus</u> Great-tailed grackle	worms, insects, crustaceans, small fish, tadpoles, small lizards, eggs and young of birds, fruit, grain (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, spiders, small fish, tadpoles (Bent 1958)	Year-round (Lowery 1974a)	
<u>Quiscalus quiscula</u> Common grackle	30% animal: insects, spiders, myriapods, crayfish, earthworms, sowbugs, reptiles, snails, fish, amphibians, birds, mice; 70% plant: grain (esp. corn), fruit, weed seeds, acorns (Bent 1958)	Year-round (Lowery 1974a)	
<u>Molothrus ater</u> Brown-headed cowbird	22% animal: insects; 78% plant: grain, weed seeds (Bent 1958)	Year-round (Lowery 1974a)	
<u>Piranga olivacea</u> Scarlet tanager	88% animal: insects; 12% plant: berries (Bent 1958)	Apr.-May (Lowery 1974a)	
<u>Cardinalis cardinalis</u> Northern cardinal	30% animal: almost wholly insects; also spiders, centi- pedes, snails, small bivalves; 70% plant: grain, seeds, wild fruits (Bent 1968)	Year-round (Lowery 1974a)	
<u>Peucaeticus ludovicianus</u> Rose-breasted grosbeak	52% animal: mostly insects; 48% plant: wild fruits, seeds (Bent 1968)	Apr.-May (Lowery 1974a)	
<u>Cuiraca caerulea</u> Blue grosbeak	68% insects; 32% plant: grain, seeds, fruits (Bent 1968)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Passerina cyanea</u> Indigo bunting	insects, seeds, fruits, berries (Bent 1968)	Apr.-Oct. (Lowery 1974a)	
<u>Passerina ciris</u> Painted bunting	21% animal: mostly insects; also spiders, snails; 70% plant: seeds (Bent 1968)	Apr.-Oct. (Lowery 1974a)	
<u>Spiza americana</u> Dickcissel	70% animal: mostly insects: some spiders (Bent 1968)	Apr.-Jul. (Lowery 1974a)	
<u>Carpodacus purpureus</u> Purple finch	mostly seeds (winter) (Bent 1968)	Nov.-Feb. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Carduelis tristis</u> American goldfinch	seeds, berries, some insects (Bent 1968)	Nov.-Apr. (Lowery 1974a)	
<u>Pipilo erythrophthalmus</u> Rufous-sided towhee	30% animal: insects, spiders, snails, millipedes, sowbugs, amphibians, reptiles; 70% plant: seeds, mast, fruit (Bent 1968)	Winter (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	92% plant: seeds; 8% animal: mostly insects (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Poocetes gramineus</u> Vesper sparrow	33% animal: mostly insects; 67% plant: seeds, grain (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Junco hyemalis</u> Slate-colored junco	seeds; some insects (Bent 1968)	Oct.-Feb. (Lowery 1974a)	
<u>Spizella passerina</u> Chipping sparrow	38% animal: mostly insects, some spiders; 62% plant: mostly grass seeds (Bent 1968)	Winter (Lowery 1974a)	
<u>Spizella pusilla</u> Field sparrow	41% animal: mostly insects, some spiders; 59% plant: grass seeds (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Zonotrichia leucophrys</u> White-crowned sparrow	primarily seeds; some fruits and berries (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Zonotrichia albicollis</u> White-throated sparrow	mostly weed seeds, small fruits, some insects (Bent 1968)	Sept.-Apr. (Lowery 1974a)	
<u>Melospiza lincolni</u> Lincoln's sparrow	42% animal: mostly insects; some spiders and millipedes; 58% plant: seeds; some grain (fall, winter, spring) (Bent 1968)	Apr.-May (Lowery 1974a)	
<u>Melospiza georgiana</u> Swamp sparrow	55% insects; 45% weed seeds (Bent 1968)	Sept.-May (Lowery 1974a)	
<u>Melospiza melodia</u> Song sparrow	34% insects; 66% plant: seeds, fruits, and berries (Bent 1968)	Oct.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974a)	
<u>Blarina brevicauda</u> Short-tailed shrew	animals, plants (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Cryptotis parva</u> Least shrew	animals	Breeds year-round (Lowery 1974b)	
<u>Scalopus aquaticus</u> Eastern mole			
<u>Myotis austroriparius</u> Southeastern myotis	insects (Lowery 1974b)	Active year-round in warm weather; mating in spring (Lowery 1974b)	
<u>Lasiurus borealis</u> Red bat	insects (Lowery 1974b)	Active year-round in warm weather; young born May-June (Lowery 1974b)	
<u>Lasiurus seminolus</u> Seminole bat	insects (Lowery 1974b)	Active year-round in warm weather; young born in June (Lowery 1974b)	
<u>Lasiurus cinereus</u> Hoary bat	Insects		
<u>Dasypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus floridanus</u> Eastern cottontail	insects, plant material (Lowery 1974b)	Breeds Jul.-Aug. (Lowery 1974b)	0.38-0.39/acre (Murray 1970)
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants	Active year-round; breeds Jan.-Sept. (Lowery 1974b)	0.38-0.39/acre (Murray 1970)
<u>Sciurus carolinensis</u> Gray squirrel	plant material (Lowery 1974b)	Active year-round; breeds Dec.-Feb.; May-Aug. (Lowery 1974b)	
<u>Sciurus niger</u> Fox squirrel	plant material, insects (Lowery 1974b)	Active year-round; breeds Jan., May-June (Lowery 1974b)	

continued

# Appendix 6.3(40). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Glaucomys volans</u> Southern flying squirrel	plant material, birds (Lowery 1974b)	Active year-round; births in spring and fall (Lowery 1974b)	
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	
<u>Reithrodontomys bumulis</u> Eastern harvest mouse	almost wholly weed seeds; also grain, green vegetation (Lowery 1974b)	Active year-round, most births in Mar. and Nov. (Lowery 1974b)	
<u>Reithrodontomys fulvescens</u> Fulvous harvest mouse	weed seeds and green plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Peromyscus gossypinus</u> Cotton mouse	plant material (Lowery 1974b)	Active year-round; breeding lowest in summer (Lowery 1974b)	
<u>Sigmodon hispidus</u> Hispid cotton rat	plant material; bird eggs and young, insects, crayfish (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	
<u>Neotoma floridana</u> Eastern wood rat	plant material, snails, insects (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat	plant material; aquatic animals (Lowery 1974b)	Active year-round; breeding peaks Nov. and Mar. (Lowery 1974b)	
<u>Canis rufus</u> Red wolf	nutria, swamp rabbit, cottontail, rice rat, cotton rat, muskrat (Riley and McBride 1972)	Breeds Jan.-Feb.; Births Mar.-Apr. (Riley and McBride 1972)	Endangered
<u>Vulpes fulva</u> Red fox	small mammals (Lowery 1974b)	Active year-round, breeds fall-winter (Lowery 1974b)	
<u>Urocyon cinereoargenteus</u> Gray fox	rats, mice, insects, berries, fruit, corn, mast (Lowery 1974b)	Active year-round; breeds late winter (Lowery 1974b)	
<u>Euarctos americanus</u> American black bear	acorns, berries, meat (Lowery 1974b)	"Hibernates" Nov.-Mar. (Lowery 1974b)	
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	

continued

Appendix 6.3(40). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Mustela vison</u> North american mink	crayfish, rodents, birds, fish, crabs, frogs (Lowery 1974b)	Active year-round births in early spring (Lowery 1974b)	
<u>Spilogale putorius</u> Spotted skunk	insects, crayfish, amphibians, small rodents, carrion, fruits (Lowery 1974b)	Breeds in winter, births in early spring (Lowery 1974b)	
<u>Mephitis mephitis</u> Striped skunk	insects, crayfish, amphibians, small rodents, small amounts of plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Lutra canadensis</u> Nearctic river otter	crabs, crayfish, fish, frogs, turtles, snakes (Lowery 1974b)	Breeds in late fall (Lowery 1974b)	
<u>Lynx rufus</u> Bobcat	rabbits, squirrels, small rodents, small birds, carrion (Lowery 1974b)	Mates mid-winter, birth in early spring (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer			

Appendix 6.3(41). Land birds likely to make regular trans-Gulf flights  
in spring (Hebrand unpubl., Lowery 1974a).

<u>Coccyzus americanus</u>	<u>Vireo philadelphicus</u>
Yellow-billed cuckoo	Philadelphia vireo
<u>Coccyzus erythrophthalmus</u>	<u>Vireo gilvus</u>
Black-billed cuckoo	Warbling vireo
<u>Caprimulgus carolinensis</u>	<u>Mniotilta varia</u>
Chuck-will's-widow	Black-and-white warbler
<u>Chordeiles minor</u>	<u>Vermivora chrysoptera</u>
Common nighthawk	Golden-winged warbler
<u>Chaetura pelagica</u>	<u>Vermivora pinus</u>
Chimney swift	Blue-winged warbler
<u>Archilochus colubris</u>	<u>Vermivora peregrina</u>
Ruby-throated hummingbird	Tennessee warbler
<u>Tyrannus tyrannus</u>	<u>Vermivora ruficapilla</u>
Eastern kingbird	Nashville warbler
<u>Myiarchus crinitus</u>	<u>Parula americana</u>
Great crested flycatcher	Northern parula warbler
<u>Empidonax flaviventris</u>	<u>Dendroica petechia</u>
Yellow-bellied flycatcher	Yellow warbler
<u>Empidonax virescens</u>	<u>Dendroica pensylvanica</u>
Acadian flycatcher	Chestnut-sided warbler
<u>Empidonax trailii</u>	<u>Dendroica cerulea</u>
Willow flycatcher	Cerulean warbler
<u>Empidonax alnorum</u>	<u>Dendroica dominica</u>
Alder flycatcher	Yellow-throated warbler
<u>Empidonax minimus</u>	<u>Dendroica virens</u>
Least flycatcher	Black-throated green warbler
<u>Contopus virens</u>	<u>Dendroica discolor</u>
Eastern wood pewee	Prairie warbler
<u>Progne subis</u>	<u>Dendroica fusca</u>
Purple martin	Blackburnian warbler
<u>Dumetella carolinensis</u>	<u>Dendroica magnolia</u>
Gray catbird	Magnolia warbler
<u>Hylocichla mustelina</u>	<u>Dendroica coronata</u>
Wood thrush	Myrtle warbler
<u>Catharus ustulata</u>	<u>Dendroica striata</u>
Swainson's thrush	Blackpoll warbler
<u>Catharus minimus</u>	<u>Dendroica castanea</u>
Gray-cheeked thrush	Bay-breasted warbler
<u>Catharus fuscescens</u>	<u>Setophaga ruticilla</u>
Veery	American redstart
<u>Bombycilla cedorum</u>	<u>Seiurus aurocapillus</u>
Cedar waxwing	Ovenbird
<u>Vireo griseus</u>	<u>Seiurus noveboracensis</u>
White-eyed vireo	Northern waterthrush
<u>Vireo flavifrons</u>	<u>Seiurus motacilla</u>
Yellow-throated vireo	Louisiana waterthrush
<u>Vireo olivaceus</u>	<u>Limnothlypis swainsoni</u>
Red-eyed vireo	Swainson's warbler

continued

Appendix 6.3(41). Concluded.

Helmintheros vermivorus

Worm-eating warbler

Protontaria citrea

Prothonotary warbler

Geothlypis formosa

Kentucky warbler

Wilsonia citrina

Hooded warbler

Wilsonia pusilla

Wilson's warbler

Icteria virens

Yellow-breasted chat

Dolichonyx oryzivorus

Bobolink

Icterus spurius

Orchard oriole

Icterus galbula

Baltimore oriole

Piranga olivacea

Scarlet tanager

Piranga rubra

Summer tanager

Pheucticus ludovicianus

Rose-breasted grosbeak

Guiraca caerulea

Blue grosbeak

Passerina cyanea

Indigo bunting

Passerina ciris

Painted bunting

Spiza americana

Dickcissel

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Appendix 6.3(42). Representative vertebrates of the Upland Forest Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Ambystoma opacum</u>			
Marbled salamander			
<u>Notopthalmus viridescens</u>			
Central newt			
<u>Scaphiopus holbrookii</u>			
Hurter's spadefoot toad			
<u>Bufo valliceps</u>			
Gulf coast toad			
<u>Bufo woodhousei</u>			
Woodhouse's toad			
<u>Acris crepitans</u>			
Northern cricket frog			
<u>Hyla crucifer</u>			
Spring peeper			
<u>Hyla squirella</u>			
Squirrel tree frog			
<u>Hyla versicolor</u> & <u>H. chrysocelis</u>			
Gray tree frog			
<u>Pseudacris triseriata</u>			
Upland chorus frog			
<u>Gastrophryne carolinensis</u>			
Eastern narrow-mouthed toad			

continued

# Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>REPTILES</u>			
<u>Terrapene carolina</u> Three-toed box turtle	omnivorous in captivity (Carr 1952)		
<u>Terrapene ornata</u> Ornate box turtle	insects and other small animals (Carr 1952)		
<u>Anolis carolinensis</u> Green anole	insects, spiders (Smith 1946)		
<u>Sceloporus undulatus</u> Fence lizard	mostly insects (Smith 1946)		
<u>Chemidophorus sexlineatus</u> Six-lined racerunner	mostly insects; some other arthropods, snails (Smith 1946)		
<u>Eumeces fasciatus</u> Five-lined skink	earthworms, spiders, insects, some young lizards and mice (Smith 1946)		
<u>Eumeces laticeps</u> Broad-headed skink	insects (Smith 1946)		
<u>Leiolopisma laterale</u> Ground skink	small insects, spiders, millipedes, pillbugs, sowbugs (Smith 1946)		
<u>Ophisaurus attenuatus</u> Slender glass lizard	insects, spiders, other arthropods, snails (Smith 1946)		
<u>Coluber constrictor</u> Racer	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
<u>Elaphe guttata</u> Corn snake			
<u>Elaphe obsoleta</u> Texas rat snake	mice, lizards, birds and their eggs, tree frogs (Wright and Wright 1957)		

continued

# Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Heterodon platyrhinos</u> Eastern hognose snake	worms, insects, fish, amphibians, reptiles, birds, mammals (Wright and Wright 1957)		
<u>Lampropeltis calligaster</u> Prairie kingsnake	fish, amphibians, reptiles, small mammals (Wright and Wright 1957)		
<u>Lampropeltis doliaata</u> Louisiana milk snake	lizards, small snakes (Wright and Wright 1957)		
<u>Lampropeltis getulus</u> Speckled king snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Opheodrys aestivus</u> Rough green snake	insects, spiders, snails, frogs, fish (Wright and Wright 1957)		
<u>Diadophis punctatus</u> Ringneck snake	insects, earthworms, toads, frogs, salamanders, snakes, lizards (Wright and Wright 1957)		
<u>Storeria dekayi</u> Brown snake	earthworms, snails, insects, small frogs, fish (Wright and Wright 1957)		
<u>Thamophis sirtalis</u> Garter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Virginia striatula</u> Rough earth snake	earthworms, mollusks, insects, sowbugs, small anurans, small lizards (Wright and Wright 1957)		
<u>Micrurus fulvius</u> Eastern coral snake	lizards, small snakes (Wright and Wright 1957)		
<u>Agkistrodon contortrix</u> Southern copperhead	frogs, small rodents, small birds (Wright and Wright 1957)		
<u>Crotalus horridus</u> Canebrake rattlesnake	toads, mice, insects, small snakes, birds (Wright and Wright 1957)		
<u>Sistrurus miliarius</u> Pygmy rattlesnake	mice, insects (Wright and Wright 1957)		

continued

# Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>BIRDS</u>			
<u>Cathartes aura</u> Turkey vulture	carion (Bent 1937)	Year-round (Lowery 1974a)	
<u>Coragyps atratus</u> Black vulture	chiefly carion, also young herons in rookeries (Bent 1937)	Year-round (Lowery 1974a)	
<u>Ictinia mississippiensis</u> Mississippi kite	mostly insects, some small frogs, lizards, snakes (Lowery 1974a)	Apr.-Oct. (Lowery 1974a)	
<u>Accipter striatus</u> Sharp-shinned hawk	small birds, small mammals, lizards, frogs, insects (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Accipter cooperi</u> Cooper's hawk	teal, snipe, screech owl, quail, doves, hawks, flickers, passerines; rabbits, opossum, skunks, rodents, reptiles, frogs, insects (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Buteo jamaicensis</u> Red-tailed hawk	almost wholly small rodents (Lowery 1974a)	Oct.-Mar. (Lowery 1974a)	
<u>Buteo lineatus</u> Red-shouldered hawk	earthworms, snails, amphibians, reptiles, birds, mammals (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Buteo platypterus</u> Broad-winged hawk	earthworms, insects, crayfish, anurans, reptiles, birds, mammals (Bent 1937)	Apr.-Sept. (Lowery 1974a)	
<u>Colinus virginianus</u> Bobwhite	84% plant: seeds, fruit, leaves, buds, tubers; 16% animal: mollusks, crustaceans, spiders, insects, frogs (Bent 1932)	Year-round (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	earthworms, grubs, slugs, insects and their larvae (Bent 1927)	Oct.-Feb. (Lowery 1974a)	Drainage ditches (Lowery 1974a)
<u>Philohela minor</u> American woodcock	seeds (Bent 1932)	Year-round (Lowery 1974a)	
<u>Zenaidura macroura</u> Mourning dove	mostly caterpillars-also other insects, wild berries, frogs, lizards (Bent 1940)	Apr.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Coccyzus erythrophthalmus</u> Black-billed cuckoo	similar to above; also small mollusks, fish, aquatic larvae, fruits and berries, bird eggs and young (Bent 1940)	Apr.-May; Aug.-Oct. (1974a)	
<u>Tyto alba</u> Barn owl	small mammals, birds, insects, frogs (Bent 1937)		"Blue List" Nat. Aud. Soc. (1976)
<u>Otus asio</u> Common screech owl	worms, arthropods, snails, fish, amphibians, reptiles, birds, mammals (Bent 1937)	Year-round; nesting in Mar.-Apr. (Lowery 1974a)	
<u>Bubo virginianus</u> Great horned owl	mostly mammals; also birds, reptiles, amphibians, fish, insects (Bent 1937)	Year-round; nesting in Dec.-Jan. (Lowery 1974a)	
<u>Strix varia</u> Barred owl	mammals, birds, reptiles, amphibians, fish, crayfish, insects, spiders (Bent 1937)	Year-round; nesting in Feb. (Lowery 1974a)	
<u>Caprimulgus carolinensis</u> Chuck-will's-widow	mostly insects; some small birds (Bent 1940)	Apr.-May; Aug.-Oct. (Lowery 1974a)	
<u>Caprimulgus vociferus</u> Whip-poor-will	entirely insects (Bent 1940)	Mar.-Apr. (Lowery 1974a)	
<u>Chordeiles minor</u> Common nighthawk	mostly flying insects (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Colaptes auratus</u> Common flicker	61% animal: ants and other insects 39% plant: fruits and berries (Bent 1949)	Year-round (Lowery 1974a)	
<u>Dryocopus pileatus</u> Pileated woodpecker	73% animal: ants, beetles; 27% plant: wild fruits and berries (Bent 1939)	Year-round (Lowery 1974a)	
<u>Melanerpes carolinus</u> Red-bellied woodpecker	26% animal: ants and other insects, spiders, frogs 74% plant: grain, nuts, fruits, berries (Bent 1939)	Year-round (Lowery 1974a)	
<u>Melanerpes erythrocephalus</u> Red-headed woodpecker	50% animal: insects, spiders, myriapods 47% plant: fruits, berries, nuts (Bent 1939)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sphyrapicus varius</u> Yellow-bellied sapsucker	cambium, bast, sap, wild fruits; ants, beetles, wasps, other insects (Bent 1939)	Sept.-Mar. (Lowery 1974a)	
<u>Picoides villosus</u> Hairy woodpecker	78% animal: insects, spiders, millipedes; 22% plant: fruit, berries, grain, cambium, mast (Bent 1939)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Picoides pubescens</u> Downy woodpecker	76% animal: insects 24% plant: mostly wild fruit (Bent 1939)	Year-round (Lowery 1974a)	
<u>Dendrocopos borealis</u> Red-cockaded woodpecker	insects (larvae & adult), pine mast, wild fruit (Bent 1948)	Year-round (Lowery 1974a)	Endangered
<u>Tyrannus tyrannus</u> Eastern kingbird	mostly insects; also small fruits and berries (Bent 1942)	Mar.-Sept. (Lowery 1974a)	
<u>Myiarchus crinitus</u> Great crested flycatcher	94% animal: insects, spiders; 6% plant: small wild fruits and berries (Bent 1942)	Apr.-Sept. (Lowery 1974a)	
<u>Empidonax flaviventris</u> Yellow-bellied flycatcher	97% animal: insects, spiders; 3% plant: small fruits, some seeds (Bent 1942)	Aug.-Oct. (Lowery 1974a)	
<u>Empidonax virescens</u> Acadian flycatcher	97% animal: insects, spiders, millipedes; 3% plant: fruits and berries (Bent 1942)	Apr.-Oct. (Lowery 1974a)	
<u>Empidonax traillii</u> Willow flycatcher	96% animal: insects, spiders, millipedes; 4% plant: fruits, berries, seeds (Bent 1942)	Aug.-Sept. (Lowery 1974a)	
<u>Empidonax alnorum</u> Alder flycatcher		Aug.-Sept. (Lowery 1974a)	
<u>Empidonax minimus</u> Least flycatcher	98% animal: insects, spiders; 2% plant: fruits, berries, seeds (Bent 1942)	Sept.-Oct. (Lowery 1974a)	
<u>Contopus virens</u> Eastern wood pewee	99% animal: insects, spiders, millipedes; 1% plant: berries (Bent 1942)	Mar.-Oct. (Lowery 1974a)	
<u>Nuttallornis borealis</u> Olive-sided flycatcher	100% insects (Bent 1942)	Aug.-Sept. (Lowery 1974a)	
<u>Cyanocitta cristata</u> Blue jay	24% animal: insects, spiders, myriapods, small fish, amphibians, birds, mice; 76% plant: grain, berries, mast (Bent 1946)	Year-round (Lowery 1974a)	
<u>Corvus brachyrhynchos</u> Common crow	28% animal: insects, spiders, snails, crustaceans, amphibians, birds, mammals, carrion; 72% plant: grain, beans, fruit, berries (Bent 1946)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Parus carolinensis</u> Carolina chickadee	72% animal: insects, spiders; 28% plant: seeds, berries (Bent 1946)	Year-round (Lowery 1974a)	
<u>Parus bicolor</u> Tufted titmouse	67% animal: insects, snails; 33% plant: fruit, berries, mast (Bent 1946)	Year-round (Lowery 1974a)	
<u>Sitta pusilla</u> Brown-headed nuthatch	insects, pine seeds, spiders (Bent 1948)	Year-round (Lowery 1974a)	
<u>Certhia familiaris</u> Brown creeper	mostly insects, also spiders, pseudoscorpions (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Troglodytes aedon</u> Northern house wren	98% arthropods; 2% plant material (Bent 1948)	Sept.-Apr. (Lowery 1974a)	
<u>Troglodytes troglodytes</u> Winter wren	almost wholly insects and spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Thryothorus ludovicianus</u> Carolina wren	94% animal: insects, spiders, millipedes, sowbugs, snails, lizards, treefrogs, snakes; 6% plant: fruit (Bent 1948)	Year-round (Lowery 1974a)	
<u>Dumetella carolinensis</u> Gray catbird	44% animal: insects, spiders; 56% plant: fruit and berries (Bent 1948)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Toxostoma rufum</u> Brown thrasher	63% animal: worms, snails, crayfish, insects, amphibians, lizards; 37% plant: fruits, berries (Bent 1948)	Year-round (Lowery 1974a)	
<u>Turdus migratorius</u> American robin	40% animal: worms, mollusks, insects 60% plant: berries and fruits (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Hylocichla mustelina</u> Wood thrush	62% animal: insects, spiders, earthworms 38% plant: berries (Bent 1949)	Mar.-Oct. (Lowery 1974a)	
<u>Catharus guttata</u> Hermit thrush	wild fruits and berries (winter) (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Catharus ustulata</u> Swainson's thrush	64% animal: insects, spiders, millipedes, snails, sowbugs, worms; 36% plant: fruits, berries, seeds (Bent 1949)	Apr.-May (Lowery 1974a)	
<u>Catharus minimus</u> Gray-cheeked thrush	75% animal: insects, spiders, other animals; 25% plant: fruits and berries (Bent 1949)	Apr.-May (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Catharus fuscescens</u> Veery	60% animal: insects, spiders, sowbugs, snails; 40% plant: fruits and berries (Bent 1949)	Apr.-May (Lowery 1974a)	
<u>Polioptila caerulea</u> Blue-gray gnatcatcher	insects, spiders (Bent 1949)	Mar.-Oct. (Lowery 1974a)	
<u>Regulus satrapa</u> Golden-crowned kinglet	almost wholly insects (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Regulus calendula</u> Ruby-crowned kinglet	94% animal: insects, spiders, pseudoscorpions; 6% plant: fruit, berries, weed seeds (Bent 1949)	Oct.-Apr. (Lowery 1974a)	
<u>Bombycilla cedrorum</u> Cedar waxwing	berries (Lowery 1974a)	Nov.-Apr. (Lowery 1974a)	
<u>Sturnus vulgaris</u> European starling	57% animal: mostly insects, also worms, snails, spiders, millipedes, sowbugs, carrion; 43% plant: fruits, berries, grain, seeds (Bent 1950)	Year-round (Lowery 1974a)	Introduced
<u>Vireo criseus</u> White-eyed vireo	90% animal: insects, spiders; 10% plant: berries and fruits (Bent 1950)	Mar.-Oct. (Lowery 1974a)	
<u>Vireo flavifrons</u> Yellow-throated vireo	98% animal: mostly insects, some spiders; 2% plant: wild fruits and berries (Bent 1950)	Mar.-Sept. (Lowery 1974a)	
<u>Vireo solitarius</u> Solitary vireo	(January) 24% plant: wild fruits and berries; 76% animal: mostly insects (Bent 1950)	Oct.-Apr. (Lowery 1974a)	
<u>Vireo olivaceus</u> Red-eyed vireo	86% animal: almost wholly insects; 14% plant: wild fruits and berries (Bent 1950)	Apr.-Oct. (Lowery 1974a)	
<u>Vireo philadelphicus</u> Philadelphia vireo	93% animal: mostly insects, some spiders; 7% plant: wild fruits and berries	Aug.-Oct. (Lowery 1974a)	
<u>Vireo gilvus</u> Warbling vireo	mostly insects, some plant material (Bent 1950)	Apr.-Aug. (Lowery 1974a)	
<u>Mniotilta varia</u> Black-and-white warbler	almost entirely insects and spiders, trace of plant material (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Vermivora chrysopetra</u> Golden-winged warbler	insects, spiders (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	

continued

# Appendix 6.3(42). Continued.

Species	Food	Seasonal Peaks of Abundance or Activity	Remarks
<u>Vermivora pinus</u> Blue-winged warbler	insects, spiders (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Vermivora peregrina</u> Tennessee warbler	insects, spiders, snails, trace of plant material (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Vermivora celata</u> Orange-crowned warbler	berries, fruits, insects (winter) (Bent 1953)	Nov.-Apr. (Lowery 1974a)	
<u>Vermivora ruficapilla</u> Nashville warbler	mostly insects (Bent 1953)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Parula americana</u> Northern parula warbler	insects, spiders (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Dendroica petechia</u> Yellow warbler	almost wholly insects, also spiders, myriapods (Bent 1953)	Apr.-May; Jul.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Dendroica pensylvanica</u> Chestnut-sided warbler	almost wholly insects; some seeds and berries (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica caerulea</u> Cerulean warbler	insects (Bent 1953)	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Dendroica dominica</u> Yellow-throated warbler	insects, spiders (Bent 1953)	Mar.-Aug. (Lowery 1974a)	
<u>Dendroica virens</u> Black-throated green warbler	insects, spiders (Bent 1953)	Apr.-May; Sept.-Nov. (Lowery 1974a)	
<u>Dendroica discolor</u> Prairie warbler	100% insects, spiders (Bent 1953)	Mar.-Aug. (Lowery 1974a)	
<u>Dendroica fusca</u> Blackburnian warbler	mostly insects (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica magnolia</u> Magnolia warbler	almost wholly insects (Bent 1953)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Dendroica coronata</u> Myrtle warbler	berries, seeds, insects (winter) (Bent 1953)		

continued

# Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Dendroica palmarum</u> Palm warbler	mostly insects; some seeds and berries (Bent 1953)	Oct.-Apr. (Lowery 1974a)	
<u>Dendroica striata</u> Blackpoll warbler	almost wholly insects; some seeds and berries (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Dendroica castanea</u> Bay-breasted warbler	almost wholly insects; some fruit (Bent 1953)	Apr.-May (Lowery 1974a)	
<u>Setophaga ruticilla</u> American redstart	mostly insects (Bent 1953)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Seiurus autocapillus</u> Oven bird	earthworms, mollusks, myriapods, spiders, insects, seeds, small fruit (Bent 1953)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Seiurus noveboracensis</u> Northern waterthrush	almost wholly animal: small worms, minnows, crustaceans, mollusks, insects; a few seeds (Bent 1953)	Aug.-Oct. (Lowery 1974a)	
<u>Seiurus motacilla</u> Louisiana waterthrush	small mollusks, small fish, insects, some seeds (Bent 1953)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Limothlypis swainsoni</u> Swainson's warbler	insects, spiders (Bent 1953)	Mar.-Sept. (Lowery 1974a)	
<u>Helminthos vermivorus</u> Worm-eating warbler	insects, spiders (Bent 1953)	Apr.-May; Jul.-Aug. (Lowery 1974a)	
<u>Protonotaria citrea</u> Prothonotary warbler	insects, spiders, small mollusks (Bent 1953)	Mar.-Sept. (Lowery 1974a)	
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Geothlypis formosa</u> Kentucky warbler	insects, spiders, some berries (Bent 1953)	Apr.-Sept. (Lowery 1974a)	
<u>Geothlypis philadelphia</u> Mourning warbler	beetles, spiders (Bent 1953)	Aug.-Oct. (Lowery 1974a)	
<u>Wilsonia citrina</u> Hooded warbler	insects (Bent 1953)	Mar.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Blarina brevicauda</u> Short-tailed shrew	animals, plants (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Scalopus aquaticus</u> Eastern mole			
<u>Myotis austroriparius</u> Southeastern myotis	insects (Lowery 1974b)	Active year-round in warm weather; mating in spring (Lowery 1974b)	
<u>Lasiurus borealis</u> Red bat	insects (Lowery 1974b)	Active year-round in warm weather; young born May-June (Lowery 1974b)	
<u>Lasiurus seminolus</u> Seminole bat	insects (Lowery 1974b)	Active year-round in warm weather; young born in June (Lowery 1974b)	
<u>Lasiurus cinereus</u> Hoary bat	insects		
<u>Dosypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants	Active year-round; breeds Jan.- Sept. (Lowery 1974b)	0.38-0.39/acre (Murray 1970)
<u>Sciurus carolinensis</u> Gray squirrel	plant material (Lowery 1974b)	Active year-round; breeds Dec.-Feb.; May-Aug. (Lowery 1974b)	
<u>Sciurus niger</u> Fox squirrel	plant material, insects (Lowery 1974b)	Active year-round; breeds Jan., May-Jun. (Lowery 1974b)	
<u>Glaucomys volans</u> Southern flying squirrel	plant material, birds (Lowery 1974b)	Active year-round; births in spring and fall (Lowery 1974b)	
<u>Reithrodontomys fulvescens</u> Fulvous harvest mouse	weed seeds and green plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	

continued

Appendix 6.3(42). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Wilsonia pusilla</u> Wilson's warbler	insects; occasionally fruit (Bent 1953)	Sept.-Oct. (Lowery 1974a)	
<u>Wilsonia canadensis</u> Canada warbler	insects, spiders (Bent 1953)	Sept. (Lowery 1974a)	
<u>Icterus spurius</u> Orchard oriole	mostly insects, spiders; some berries, flowers (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Icterus galbula</u> Baltimore oriole	1/3 caterpillars; also beetles, ants, parasitic wasps, bugs, grasshoppers, spiders, snails	Apr.-May; Aug.-Sept. (Lowery 1974a)	
<u>Euphagus cyanocephalus</u> Brewer's blackbird	32% animal: insects, spiders, sowbugs, snails, egg shells; 68% plant: berries, grain, weed seeds (Bent 1958)	Nov.-Mar. (Lowery 1974a)	
<u>Piranga olivacea</u> Scarlet tanager	88% animal: insects; 12% plant: berries (Bent 1958)	Apr.-May (Lowery 1974a)	
<u>Piranga rubra</u> Summer tanager	Insects, spiders, fruits, berries (Bent 1958)	Apr.-Sept. (Lowery 1974a)	
<u>Cardinalis cardinalis</u> Northern cardinal	30% animal: almost wholly insects; also spiders, centi- pedes, snails, small bivalves; 70% plant: grain, seeds, wild fruits (Bent 1968)	Year-round (Lowery 1974a)	
<u>Phoebastria ludovicianus</u> Rose-breasted grosbeak	52% animal: mostly insects; 48% plant: wild fruits, seeds	Apr.-May (Lowery 1974a)	
<u>Carpodacus purpureus</u> Purple finch	mostly seeds (winter) (Bent 1968)	Nov.-Feb. (Lowery 1974a)	
<u>Carduelis tristis</u> American goldfinch	seeds, berries, some insects (Bent 1968)	Nov.-Apr. (Lowery 1974a)	
<u>Junco hyemalis</u> Slate-colored junco	seeds; some insects (Bent 1968)	Oct.-Feb. (Lowery 1974a)	
<u>Spizella passerina</u> Chipping sparrow	38% animal: mostly insects, some spiders; 62% plant: mostly grass seeds (Bent 1968)	Winter (Lowery 1974a)	
<u>Zonotrichia albicollis</u> White-throated sparrow	mostly weed seeds, small fruits, some insects (Bent 1968)	Sept.-Apr. (Lowery 1974a)	

continued

Appendix 6.3(42). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Peromyscus gossypinus</u> Cotton mouse	plant material (Lowery 1974b)	Active year-round; breeding lowest in summer (Lowery 1974b)	
<u>Neotoma floridana</u> Eastern wood rat	plant material, snails, insects (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Urocyon cinereoargenteus</u> Gray fox	rats, mice, insects, berries, fruit, corn, mast (Lowery 1974b)	Active year-round; breeds late winter (Lowery 1974b)	
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	
<u>Lynx rufus</u> Bobcat	rabbits, squirrels, small rodents, small birds,	Mates mid-winter, birth in early spring (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer			

Appendix 6.3(43). Representative vertebrates of the Pasture Habitat in the Chenier Plain.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>AMPHIBIANS</u>			
<u>Ambystoma texanum</u> Small-mouthed salamander			
<u>Eurycea quadridigitata</u> Dwarf salamander			
<u>Scaphiopus holbrookii</u> Hurter's spadefoot toad			
<u>Bufo valliceps</u> Gulf coast toad			
<u>Bufo woodhousei</u> Woodhouse's toad			
<u>Acris crepitans</u> Northern cricket frog			
<u>Hyla crucifer</u> Spring peeper			
<u>Hyla squirella</u> Squirrel tree frog			
<u>Rana catesbeiana</u> Bullfrog			
<u>Rana sphenocephala</u> Southern leopard frog			
<u>Gastrophryne carolinensis</u> Eastern narrow-mouthed toad			

continued

# Appendix 6.3(43). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>REPTILES</u>			
<u>Terrapene ornata</u>	insects and other small animals (Carr 1952)		
Ornate box turtle			
<u>Anolis carolinensis</u>	insects, spiders (Smith 1946)		
Green anole			
<u>Cnemidophorus sexlineatus</u>	mostly insects; some other arthropods, snails (Smith 1946)		
Six-lined racerunner			
<u>Leiolopisma laterale</u>	small insects, spiders, millipedes, pillbugs, sowbugs (Smith 1946)		
Ground skink			
<u>Ophlaeura attenuatus</u>	insects, spiders, other arthropods, snails (Smith 1946)		
Slender glass lizard			
<u>Coluber constrictor</u>	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
Racer			
<u>Elaphe guttata</u>			
Corn snake			
<u>Heterodon platyrhinos</u>	worms, insects, fish, amphibians, reptiles, birds, mammals (Wright and Wright 1957)		
Eastern hognose snake			
<u>Lampropeltis calligaaster</u>	small mammals, lizards, frogs, small fish, toads, smaller snakes (Wright and Wright 1957)		
Prairie kingsnake			
<u>Lampropeltis getulus</u>	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
Speckled king snake			
<u>Opheodrys aestivus</u>	insects, spiders, snails, frogs, fish (Wright and Wright 1957)		
Rough green snake			
<u>Storeria dekayi</u>	earthworms, snails, insects, small frogs, fish (Wright and Wright 1957)		
Brown snake			

continued

# Appendix 6.3(43). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Storeria occipitomaculata</u> Northern red-bellied snake	insects, slugs, earthworms, myriapods, sowbugs (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Thamnophis sirtalis</u> Garter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Virginia striatula</u> Rough earth snake	earthworms, insects, sowbugs, mollusks, small anurans, young lizards (Wright and Wright 1957)		
<u>Micrurus fulvius</u> Eastern coral snake	lizards, small snakes (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		
<u>Sistrurus miliarius</u> Pygmy rattlesnake	mice, insects (Wright and Wright 1957)		
<u>BIRDS</u>			
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974a)	Year-round (Lowery 1974a)	Invaded La. in 1955
<u>Branta canadensis</u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges; some mollusks, crustaceans (Bent 1925)	Oct.-Feb. (Lowery 1974a)	Introduced at Rockefeller Wildlife Refuge
<u>Anser albifrons</u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	
<u>Chen caerulescens</u> Snow goose	almost wholly plants: grain, roots and culms of grasses; some insects, mollusks (Bent 1923)	Oct.-Apr. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Anthus spinoletta</u> Water pipit	insects, seeds (Bent 1950)	Nov.-Mar. (Lowery 1974a)	
<u>Anthus spragueii</u> Sprague's pipit		Nov.-Feb. (Lowery 1974a)	
<u>Lanius ludovicianus</u> Loggerhead shrike	68% insects, 28% small vertebrates, 4% spiders (Bent 1950)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sturnus vulgaris</u> European starling	57% animal: mostly insects, also worms, snails, spiders, millipedes, sowbugs, carrion; 43% plant: fruits, berries, grain, seeds (Bent 1950)	Year-round (Lowery 1974a)	Introduced
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, spiders; a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Passer domesticus</u> House sparrow	68% animal; 32% plant (Bent 1958)	Year-round (Lowery 1974a)	Introduced
<u>Doichonyx oryzivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Sturnella magna</u> Eastern meadowlark	74% animal: insects, spiders; 26% plant: grain, seeds (Bent 1958)	Year-round (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: fruit, grain, weed seeds; 27% animal: mostly insects, some spiders and myriapods (Bent 1953)	Year-round (Lowery 1974a)	
<u>Icterus spurius</u> Orchard oriole	mostly insects, spiders; some berries, flowers (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Euphagus carolinus</u> Rusty blackbird	53% animal: insects, spiders, myriapods, crustaceans, amphibians, snails, small fish; 47% plant: grain, seeds, fruit, mast (Bent 1958)	Nov.-Apr. (Lowery 1974a)	
<u>Euphagus cyanocephalus</u> Brewer's blackbird	32% animal: insects, spiders, sowbugs, snails, egg shells; 68% plant: berries, grain, weed seeds (Bent 1958)	Nov.-Mar. (Lowery 1974a)	
<u>Quiscalus mexicanus</u> Great-tailed grackle	insects, fish, worms, small lizards, tadpoles, eggs and young of other birds (Bent 1958)	Mar.-Aug. (Lowery 1974a)	

continued

# Appendix 6.3(43). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Cathartes aura</u> Turkey vulture	carion (Bent 1937)		
<u>Coragyps atratus</u> Black vulture	chiefly carion, also young herons in rookeries	Year-round (Lowery 1974a)	
<u>Accipter striatus</u> Sharp-shinned hawk	small birds, small mammals, frogs, lizards, insects (Bent 1937)	Sept.-Apr. (Lowery 1974a)	
<u>Accipter cooperi</u> Cooper's hawk	teal, snipe, screech owl, quail, doves, hawks, flickers, passerines; rabbits, opossum, skunks, rodents, reptiles, frogs, insects (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Buteo jamaicensis</u> Red-tailed hawk	almost wholly small rodents (Lowery 1974a)	Oct.-Mar. (Lowery 1974a)	
<u>Buteo swainsoni</u> Swainson's hawk	mostly small mammals and insects (Bent 1937)	Accidental (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Circus cyaneus</u> Marsh hawk	small mammals, herons, ducks, coots, rails, shorebirds,	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Caracara cheriway</u> Audubon's caracara	mostly carion; also worms, insects, crustaceans, fish amphibians, reptiles, small mammals (Bent 1937)	Year-round at Gum Cove, Cameron Par. (Lowery 1974a)	"Blue List"
<u>Falco peregrinus</u> Peregrine falcon	primarily birds; also mammals, insects (Bent 1937)	Sept.-May (Lowery 1974a)	Endangered
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco sparverius</u> American kestrel	insects, amphibians, reptiles, birds, mammals (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

# Appendix 6.3(43). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Tympanuchus cupido</u> Attwater's prairie chicken			Last La. record - 1919 (Lowery 1974)
<u>Colinus virginianus</u> Bobwhite			0.06/acre (Murray 1970)
<u>Francolinus francolinus</u> Black francolin	62% animal: mollusks, insects, spiders; 38% plant: tubers, legume seeds, green leaves	Year-round (Lowery 1974a)	Introduced at Gum Cove, Cameron Par. (Lowery 1974a)
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Charadrius vociferus</u> Killdeer	98% insects and other animal matter (e.g., snails, crabs, crayfish); 2% plant: weed and grass seeds (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Pluvialis dominica</u> American golden plover	almost entirely insects; also small mollusks and crustaceans; some grass seeds, seaweed (Bent 1929)	Mar.-May (Lowery 1974a)	
<u>Limosa haemastica</u> Hudsonian godwit	worms, mollusks, various insects, crustaceans, other small marine life	Apr.-Jun. (Lowery 1974a)	
<u>Limosa fedoa</u> Marbled godwit	insects, mollusks (Bent 1927)	Oct.-Nov. (Lowery 1974a)	
<u>Numenius phaeopus</u> Whimbrel	earthworms, sandworms, insects, mollusks, small crustaceans, some plant material	Apr.-May (Lowery 1974a)	
<u>Numenius americanus</u> Long-billed curlew	worms, crustaceans, snails, insects, toads (Bent 1929)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Bartramia longicauda</u> Upland sandpiper	97% animal: mostly insects; 3% plant: seeds (Bent 1929)	Mar.-Apr. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Philohela minor</u> American woodcock	earthworms, grubs, slugs, insects and their larvae (Bent 1927)	Oct.-Feb. (Lowery 1974a)	
<u>Capella gallinago</u> Common snipe	mostly earthworms, also other worms, insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris fuscicollis</u> White-rumped sandpiper	78% animal: snails, marine worms 22% plant: seeds (Bent 1927)	Apr.-Jun. (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Stilt sandpiper	animal (70%); small worms, mollusks, insects plant (30%); seeds (Bent 1927)	Apr.-May (Lowery 1974a)	
<u>Trygites subruficollis</u> Buff-breasted sandpiper	99% animal: insects, spiders; 1% plant: seeds	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Zenaida macroura</u> Mourning dove	seeds (Bent 1932)	Year-round (Lowery 1974a)	0.39-0.80/acre (Murray 1970)
<u>Columbina passerina</u> Common ground dove	small seeds, berries, insects (Bent 1932)	Oct.-May (Lowery 1974a)	

continued

Appendix 6.3(43). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Crotophaga sulcirostris</u> Groove-billed ani	mostly insects, also fruits and berries (Bent 1940)	Oct.-Apr. (Lowery 1974a)	
<u>Tyto alba</u> Barn owl	small mammals, birds, insects, frogs (Bent 1937)		"Blue List" Nat. Aud. Soc. (1976)
<u>Athene cunicularia</u> Burrowing owl	insects, small mammals, birds, lizards, snakes, amphibians, fish, myriapods, crayfish (Bent 1937)	Oct.-Mar. (Lowery 1974a)	
<u>Asio flammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Colaptes auratus</u> Common flicker	61% animal: ants and other insects 39% plant: fruits and berries (Bent 1949)	Year-round (Lowery 1974a)	
<u>Tyrannus tyrannus</u> Eastern kingbird	mostly insects; also small fruits and berries (Bent 1942)	Mar.-Sept. (Lowery 1974a)	
<u>Tyrannus verticalis</u> Western kingbird	91% animal: insects; 9% plant: seeds (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Muscivora forficata</u> Scissor-tailed flycatcher	96% animal: insects; 4% plant: small fruits and berries, a few seeds (Bent 1942)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Pyrocephalus rubinus</u> Vermilion flycatcher	insects (Bent 1942)	Sept.-Apr. (Lowery 1974a)	
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Abundance or Activity</u>	<u>Remarks</u>
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Petrochelidon pyrrhonota</u> Cliff swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Progne subis</u> Purple martin	mostly insects, some spiders (Bent 1942)	Feb.-Aug.; nesting Apr.-Jun. (Lowery 1974a)	
<u>Corvus brachyrhynchos</u> Common crow	28% animal: insects, spiders, snails, crustaceans, amphibians, birds, mammals, carrion; 72% plant: grain, beans, fruit, berries (Bent 1946)	Year-round (Lowery 1974a)	
<u>Troglodytes aedon</u> Northern house wren	98% arthropods; 2% plant material (Bent 1948)	Sept.-Apr. (Lowery 1974a)	
<u>Troglodytes troglodytes</u> Winter wren	almost wholly insects and spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Thryothorus ludovicianus</u> Carolina wren	94% animal: insects, spiders, millipedes, sowbugs, snails, lizards, treefrogs, snakes; 6% plant: fruit, seeds, berries, mast (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus platensis</u> Sedge wren	insects, spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Mimus polyglottos</u> Northern mockingbird	48% animal: insects, spiders, crayfish, sowbugs, snails, lizards, small snakes; 52% plant: fruits and berries (Bent 1948)	Year-round (Lowery 1974a)	
<u>Dumetella carolinensis</u> Gray catbird	44% animal: insects, spiders; 56% plant: fruit and berries (Bent 1948)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Turdus migratorius</u> American robin	40% animal: worms, mollusks, insects 60% plant: berries and fruits (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Sialia sialis</u> Eastern bluebird	68% animal: insects, spiders, myriapods; 32% plant: largely wild fruit (winter) (Bent 1949)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(43). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Quiscalus major</u> Boat-tailed grackle	insects, tadpoles, frogs, small fish, spiders (Bent 1958)	Year-round (Lowery 1974a)	
<u>Quiscalus quiscula</u> Common grackle	30% animal: insects, spiders, myriapods, crayfish, earthworms, sowbugs, reptiles, snails, fish, amphibians, birds, mice; 70% plant: grain (esp. corn), fruit, weed seeds, acorns (Bent 1958)	Year-round (Lowery 1974a)	
<u>Molothrus ater</u> Brown-headed cowbird	22% animal: insects; 78% plant: grain, weed seeds (Bent 1958)	Year-round (Lowery 1974a)	
<u>Cardinalis cardinalis</u> Northern cardinal	30% animal: almost wholly insects; also spiders, centipedes, snails, small bivalves; 70% plant: grain, seeds, wild fruits (Bent 1968)	Year-round (Lowery 1974a)	
<u>Passerina cyanea</u> Indigo bunting	insects, seeds, fruits, berries (Bent 1968)	Apr.-Oct. (Lowery 1974a)	
<u>Passerina ciris</u> Painted bunting	21% animal: mostly insects; also spiders, snails; 79% seeds (Bent 1968)	Apr.-Oct. (Lowery 1974a)	
<u>Spiza americana</u> Dickcissel	70% animal: mostly insects; some spiders; 30% plant: weed seeds, grain (Bent 1968)	Apr.-Jul. (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	92% plant: seeds; 8% animal: mostly insects (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Poocetes gramineus</u> Vesper sparrow	33% animal: mostly insects; 67% plant: seeds, grain (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Spizella passerina</u> Chipping sparrow	38% animal: mostly insects; some spiders; 62% plant: mostly grass seeds (Bent 1968)	Winter (Lowery 1974a)	
<u>Spizella pusilla</u> Field sparrow	41% animal: mostly insects; some spiders; 59% plant: grass seeds (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Zonotrichia leucophrys</u> White-crowned sparrow	mostly seeds, some fruits and berries (winter) (Bent 1968)	Oct.-Apr. (Lowery 1974a)	

continued

# Appendix 6.3(43). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Melospiza lincolnii</u> Lincoln's sparrow	42% animal: mostly insects, some spiders and millipedes; 58% plant: seeds, some grain (Bent 1968)	Apr.-May (Lowery 1974a)	
<u>Melospiza georgiana</u> Swamp sparrow	55% insects; 45% weed seeds (Bent 1968)	Sept.-May (Lowery 1974a)	
<u>Melospiza melodia</u> Song sparrow	34% animal: insects; 66% plant: seeds, fruits, berries	Oct.-Apr. (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Cryptotis parva</u> Least shrew	animals	Breeds year-round (Lowery 1974b)	
<u>Sylvilagus floridanus</u> Eastern cottontail	insects, plant material (Lowery 1974b)	Breeds Jul.-Aug. (Lowery 1974b)	0.38-0.39/acre (Murray 1970)
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants	Active year-round; breeds Jan.-Sept. (Lowery 1974b)	0.38-0.39/acre (Murray 1970)
<u>Geomys bursarius</u> Plains pocket gopher	roots, tubers, other plant material	Active year-round; breeds Mar.-Apr.; births May-Dec. (Lowery 1974b)	
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans; bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	
<u>Reithrodontomys humilis</u> Eastern harvest mouse	almost wholly weed seeds; also grain, green vegetation	Active year-round, most births in Mar. and Nov. (Lowery 1974b)	
<u>Reithrodontomys fulvescens</u> Fulvous harvest mouse	weed seeds and green plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	

continued

Appendix 6.3(43). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Sigmodon hispidus</u> Hispid cotton rat	plant material; bird eggs and young, insects, crayfish (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	
<u>Rattus norvegicus</u> Norway rat	grain, garbage, other rats (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	Introduced
<u>Mus musculus</u> House mouse	omnivorous (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	Introduced
<u>Canis rufus</u> Red wolf	nutria, swamp rabbit, cottontail, rice rat, cotton rat, muskrat (Riley and McBride 1972)	Breeds Jan.-Feb. (Riley and McBride 1972)	Endangered
<u>Urocyon cinereoargenteus</u> Gray fox	rats, mice, rabbits, insects, songbirds, fruits and berries (Lowery 1974b)	Active year-round, breeds in late winter (Lowery 1974b)	
<u>Vulpes fulva</u> Red fox	small mammals (Lowery 1974b)	Active year round, breeds fall- winter (Lowery 1974b)	
<u>Procyon lotor</u> Northern raccoon	animal and plant material (Lowery 1974b)	Active year-round; mating Dec.- Jan. (Lowery 1974b)	
<u>Spilogale putorius</u> Spotted skunk	insects, crayfish, insects, amphibians, small rodents, carrion, fruits (Lowery 1974b)	Breeds in winter, births in early spring (Lowery 1974b)	
<u>Mephitis mephitis</u> Striped skunk	insects, crayfish, amphibians, small rodents, small amounts of plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer	plant material (Lowery 1974b)	Breeds: Sept.-Mar. (Lowery 1974b)	

AMPHIBIANS

Notophthalmus viridescens

Central newt

Amphiuma tridactylum

Three-toed amphiuma

Siren intermedia

Lesser siren

Eurycea quadridigitata

Dwarf salamander

Bufo valliceps

Gulf coast toad

Bufo woodhousei

Woodhouse's toad

Acris crepitans

Northern cricket frog

Hyla cinerea

Green tree frog

Hyla crucifer

Spring peeper

Hyla squirella

Squirrel tree frog

Pseudacris triseriata

Upland chorus frog

Rana catesbeiana

Bullfrog

insects (Wright and Wright 1949)

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Rana clamitans</u>			
Bronze frog			
<u>Rana grylio</u>			
Pig frog			
<u>Rana sphenoccephala</u>			
Southern leopard frog			
<u>Gastrophryne carolinensis</u>			
Eastern narrow-mouthed toad			
<u>REPTILES</u>			
<u>Kinosternon subrubrum</u>	insects, small snails (Carr 1952)		
Mississippi mud turtle			
<u>Chrysemys picta</u>	juvenile: 13% plant, 85% animal adult: 88% plant, 10% animal (Carr 1952)		
Southern painted turtle			
<u>Chrysemys scripta</u>	juvenile: 30% plant, 70% animal (e.g., amphipods) adult: 89% plant, 11% animal (e.g., caryfish) (Carr 1952)		
Red-eared turtle			
<u>Deirochelys reticularia</u>	tadpoles, crayfish, plant material (Carr 1952)		
Chicken turtle			
<u>Coluber constrictor</u>	insects, frogs, snakes, young birds (Wright and Wright 1957)	Breeds: May Hatch: Jul.-Sept. (Wright and Wright 1957)	
Racer			
<u>Elaphe guttata</u>			
Corn snake			
<u>Farancia abacura</u>	amphibians, sirens, frogs (Wright and Wright 1957)		
Mud snake			
<u>Lampropeltis calligaster</u>	small mammals, lizards, frogs, small fish, toads, smaller snakes		
Prairie kingsnake			

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Lampropeltis doliiata</u> Louisiana milk snake	lizards, small snakes (Wright and Wright 1957)		
<u>Lampropeltis retulus</u> Speckled king snake	other snakes, small birds, lizards, mice, rats (Wright and Wright 1957)		
<u>Nerodia cyclopion</u> Green water snake	<u>Gambusia</u> (77.6%); other fish (18.6%); tadpoles (3.5%)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia erythrogaster</u> Yellow-bellied water snake	fish (65.3%); frogs and toads (27.0%); tadpoles (7.5%) (Mushinsky and Hebrard 1976)	Apr.-Aug. (Mushinsky and Hebrard unpublished manuscript)	
<u>Nerodia rhombifera</u> Diamondback water snake	fish (92.7%); frogs and toads (1.0%); tadpoles (6.1%)	Mar.-Oct. (Mushinsky and Hebrard unpublished manuscript)	
<u>Regina grahami</u> Graham's crayfish snake	crayfish (100%) (Mushinsky and Hebrard 1976)	Mar.-Sept. (Mushinsky and Hebrard unpublished manuscript)	
<u>Regina rigida</u> Glossy crayfish snake	<u>Siren</u> , fish, crayfish (Wright and Wright 1957)		
<u>Diadophis punctatus</u> Ringneck snake	insects, earthworms, toads, frogs, salamanders, snakes, lizards (Wright and Wright 1957)		
<u>Storeria dekayi</u> Brown snake	earthworms, snails, insects, small frogs, fish (Wright and Wright 1957)		
<u>Storeria occipitomaculata</u> Northern red-bellied snake	insects, slugs, earthworms, myriapods, sowbugs (Wright and Wright 1957)		
<u>Thamnophis proximus</u> Western ribbon snake	insects, fish, frogs, salamanders, mice, toads (Wright and Wright 1957)		
<u>Thamnophis sirtalis</u> Carter snake	earthworms, mollusks, insects, fish, salamanders, toads, frogs, small mammals, small birds (Wright and Wright 1957)		
<u>Virginia striatula</u> Rough earth snake	earthworms, insects, sowbugs, mollusks, small anurans, young lizards (Wright and Wright 1957)		
<u>Agkistrodon piscivorus</u> Cottonmouth	fish, salamanders, frogs, reptiles, birds, mammals (Wright and Wright 1957)		

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>BIRDS</u>			
<u>Ardea herodias</u> Great blue heron	mostly fish; also crustaceans, insects, frogs, lizards, snakes, birds, small mammals (Bent 1926)	Year-round (Lowery 1974a)	
<u>Butorides striatus</u> Green heron	small fish, earthworms, insects, tadpoles, frogs, snakes, small mammals (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Florida caerulea</u> Little blue heron	crayfish, small crabs, insects, fish, frogs, lizards (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Bubulcus ibis</u> Cattle egret	insects (Lowery 1974a)	Year-round (Lowery 1974a)	Invaded La. in 1955
<u>Casmerodius albus</u> Great egret	small fish, snails, fiddlers, insects, frogs, lizards, small snakes, mice, some plant material (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Egretta thula</u> Snowy egret	shrimp, small fish, fiddlers, snails, insects, crayfish, small lizards, small frogs, small snakes (Bent 1926)	Mar.-Oct. (Lowery 1974a)	
<u>Hydranassa tricolor</u> Louisiana heron	slugs, snails, crayfish, insects, small fish, lizards, frogs (Bent 1926)	Mar.-Nov. (Lowery 1974a)	
<u>Nycticorax nycticorax</u> Black-crowned night heron	mostly fish (alive or dead), worms, crustaceans, insects		"Blue List" Nat. Aud. Soc. (1976)
<u>Nyctanassa violacea</u> Yellow-crowned night heron	snails, crayfish, crabs, fish, small reptiles, small mammals and birds (Bent 1926)	Mar.-Sept. (Lowery 1974a)	
<u>Ixobrychus exilis</u> Least bittern	slugs, leeches, insects, small fish, tadpoles, small frogs, lizards, small mammals (Bent 1926)	Apr.-Sept. (Lowery 1974a)	
<u>Botaurus lentiginosus</u> American bittern	mollusks, crayfish, insects, small fish, frogs, lizards, small snakes, mice (Bent 1926)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Mycteria americana</u> Wood stork	fish, aquatic reptiles, insects (Bent 1926)	Jun.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Plegadis falcinellus</u> Glossy ibis	insects, crayfish, young snakes (Bent 1926)	Year-round (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Plegadis chihi</u> White-faced ibis	earthworms, crayfish, mollusks, crayfish, insects, small fish and frogs, newts, leeches (Bent 1926)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Eudocimus albus</u> White ibis	mostly crayfish; also other crustaceans, slugs, snails,	Mar.-Sept. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Ajaia ajaja</u> Roseate spoonbill	fish, shrimp, insects (Bent 1926)	Year-round (Lowery 1974a)	
<u>Branta canadensis</u> Canada goose	almost wholly plants: aquatic plants, marsh grasses, sedges; some mollusks, crustaceans (Bent 1925)	Oct.-Feb. (Lowery 1974a)	Introduced at Rockefeller Refuge
<u>Anser albifrons</u> White-fronted goose	grain, tender shoots, occasional insects (Bent 1925)	Nov.-Mar. (Lowery 1974a)	
<u>Chen caerulescens</u> Snow goose	almost wholly plants: grain, roots and culms of grasses; some insects, mollusks (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Dendrocygna bicolor</u> Fulvous whistling-duck	mostly seeds of grasses and weeds; also grasses, grain (Bent 1923)	Apr.-Sept. (Lowery 1974a)	
<u>Anas platyrhynchos</u> Mallard	90% plant: sedges, grasses, smartweeds, pondweeds, duckweeds, tubers, mast; 10% animal: insects, crustaceans, mollusks, fish (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas rubripes</u> Black duck	mast, grain, mollusks, crustaceans (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas fulvigula</u> Mottled duck	40% animal: mollusks, insects, crayfish, small fish 60% plant: mostly grasses (plants and seeds) (Bent 1923)	Year-round (Lowery 1974a)	
<u>Anas strepera</u> Gadwall	principally plants (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas acuta</u> Northern pintail	13% animal: mollusks, crustaceans, insects 87% plant: pondweed, sedges and grasses (60%); other (27%) (Bent 1923)	Oct.-Mar. (Lowery 1974a)	
<u>Anas crecca</u> Green-winged teal	10% animal: insects, mollusks, crustaceans	Oct.-Mar. (Lowery 1974a)	

continued

# Appendix 6.3(44). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Anas discors</u> Blue-winged teal	30% animal: worms, mollusks, insects, tadpoles 70% plant: sedges, pondweeds and grasses (43.6%); other (26.4%) (Bent 1923)	Feb.-Apr.; Sept.-Nov. (Lowery 1974a)	
<u>Anas clypeata</u> Northern shoveler	animal: worms, small mollusks, insects, shrimp, small fish, small frogs, plant: buds and young shoots of rushes and other aquatic; grasses (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Anas americana</u> American widgeon	90% plant, 10% animal (from Sept.-Apr.) (Bent 1923)	Oct.-Apr. (Lowery 1974a)	
<u>Cathartes aura</u> Turkey vulture	carion (Bent 1937)	Year-round (Lowery 1974a)	
<u>Coragyps atratus</u> Black vulture	chiefly carion, also young herons in rookeries (Bent 1937)	Year-round (Lowery 1974a)	
<u>Accipiter striatus</u> Sharp-shinned hawk	small birds, small mammals, frogs, lizards, insects (Bent 1937)	Sept.-Apr. (Lowery 1974a)	
<u>Accipiter cooperi</u> Cooper's hawk	teal, snipe, screech owl, quail, doves, hawks, flickers, passerines; rabbits, opossum, skunks, rodents, reptiles, frogs, insects (Bent 1937)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Buteo jamaicensis</u> Red-tailed hawk	almost wholly small rodents (Lowery 1974a)	Oct.-Mar. (Lowery 1974a)	
<u>Buteo swainsoni</u> Swainson's hawk	mostly small mammals and insects (Bent 1937)	Accidental (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Circus cyaneus</u> Marsh hawk	small mammals, herons, ducks, coots, rails, shorebirds, songbirds	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Caracara cheriway</u> Audubon's caracara	mostly carion; also worms, insects, crustaceans, fish, amphibians, reptiles, small mammals (Bent 1937)	Year-round at Gum Cove, Cameron Par. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Falco columbarius</u> Merlin	mostly birds: green-winged teal, shorebirds, small chickens, various songbirds; also insects, spiders, reptiles, mice, pocket gophers, squirrels, bats (Bent 1937)	Sept.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Falco sparverius</u> American kestrel	insects, amphibians, reptiles, birds, mammals (Bent 1937)	Sept.-Apr. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Colinus virginianus</u> Bobwhite	84% plant: seeds, fruit, leaves, buds, tubers; 16% animal: mollusks, crustaceans, spiders, insects, frogs (Bent 1932)	Year-round (Lowery 1974a)	0.11-0.12/acre (Murray 1970)
<u>Francolinus francolinus</u> Black francolin	62% animal: mollusks, insects, spiders; 38% plant: tubers, legume seeds, green leaves	Year-round (Lowery 1974a)	Introduced at Gum Cove, Cameron Par (Lowery 1974)
<u>Rallus elegans</u> King rail	grass seeds, insects, slugs, leeches, tadpoles, crayfish (Bent 1926)	Year-round (Lowery 1974a)	
<u>Rallus limicola</u> Virginia rail	earthworms, crayfish, insects, snails, small fish, some grass seeds (Bent 1926)	Oct.-Apr. (Lowery 1974a)	
<u>Porzana carolina</u> Sora	small mollusks, insects, seeds (Bent 1926)	Sept.-May (Lowery 1974a)	
<u>Coturnicops noveboracensis</u> Yellow rail		Oct.-May (Lowery 1974a)	
<u>Laterallus jamaicensis</u> Black rail		Nov.-Apr. (Lowery 1974a)	
<u>Porphyryula martinica</u> Purple gallinule	rice, other seeds, worms, mollusks (Bent 1926)	Apr.-Sept. (Lowery 1974a)	
<u>Gallinula chloropus</u> Common gallinule	seeds, roots, soft parts of aquatic plants, snails, insects, worms (Bent 1926)	Apr.-Nov. (Lowery 1974a)	
<u>Fulica americana</u> American coot	leaves, fronds, seeds and roots of aquatic plants; wild celery, algae, worms, snails, insects, small fish, tadpoles (Bent 1926)	Sept.-Apr. (Lowery 1974a)	
<u>Himantopus mexicanus</u> Black-necked stilt	99% animal: mostly insects; also crayfish, snails, tiny fish. 1% plant: seeds of aquatic and marsh plants (Bent 1927)	Mar.-Oct. (Lowery 1974a)	

continued

# Appendix 6.3(44). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Recurvirostra americana</u> American avocet	65% animal: insects. 35% plant: seeds of aquatic and marsh plants (Bent 1927)	Sept.-May (Lowery 1974a)	
<u>Charadrius vociferus</u> Killdeer	98% insects and other animal matter (e.g., snails, crabs, crayfish); 2% plant: weed and grass seeds (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Pluvialis dominica</u> American golden plover	almost entirely insects; also small mollusks and crustaceans; some grass seeds, seaweed (Bent 1929)	Mar.-May (Lowery 1974a)	
<u>Pluvialis squatarola</u> Black-bellied plover	marine worms, small mollusks, crustaceans, insects, some plant material (Bent 1929)	Sept.-May (Lowery 1974a)	
<u>Limosa haemastica</u> Hudsonian godwit	worms, mollusks, various insects, crustaceans, other Small marine life	Apr.-Jun. (Lowery 1974a)	
<u>Limosa fedoa</u> Marbled godwit	insects; mollusks (Bent 1927)	Oct.-Nov. (Lowery 1974a)	
<u>Numenius americanus</u> Long-billed curlew	worms, crustaceans, snails, insects, toads (Bent 1929)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Batrachia longicauda</u> Upland sandpiper	97% animal: mostly insects; 3% plant: seeds (Bent 1929)	Mar.-Apr. (Lowery 1974a)	
<u>Tringa melanoleuca</u> Greater yellowlegs	small fish, occasionally insects (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa flavipes</u> Lesser yellowlegs	mostly insects; also small crustaceans, small fish, worms (Bent 1927)	Feb.-May; Aug.-Nov. (Lowery 1974a)	
<u>Tringa solitaria</u> Solitary sandpiper	insects, spiders, worms, small crustaceans, small frogs (Bent 1929)	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Actitis macularia</u> Spotted sandpiper	insects, occasionally small fish	Mar.-Apr.; Aug.-Oct. (Lowery 1974a)	
<u>Steganopus tricolor</u> Wilson's phalarope	aquatic insects and their larvae; amphipods; seeds of aquatic plants (Bent 1927)	Apr.-May; Jul.-Sept. (Lowery 1974a)	

continued

Appendix 6.3(44). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Capella gallinago</u> Common snipe	mostly earthworms, also other worms, insects, some seeds of marsh plants (Bent 1927)	Oct.-Apr. (Lowery 1974a)	
<u>Limnodromus griseus</u> Short-billed dowitcher	worms, insects, fish eggs, small mollusks, seeds and roots of aquatic plants (Bent 1927)	Mar.-May; Sept.-Nov. (Lowery 1974a)	
<u>Limnodromus scolopaceus</u> Long-billed dowitcher	insect larvae, some plant material (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris pusilla</u> Semipalmated sandpiper	small mollusks, worms, insects, traces of plant material (Bent 1927)	Apr.-May; Sept.-Nov. (Lowery 1974a)	
<u>Calidris mauri</u> Western sandpiper	insects, marine worms, small snails (Bent 1927)	Aug.-May (Lowery 1974a)	
<u>Calidris minutilla</u> Least sandpiper	mostly insects; also small crustaceans, worms (Bent 1927)	Aug.-Apr. (Lowery 1974a)	
<u>Calidris fuscicollis</u> White-rumped sandpiper	78% animal: snails, marine worms 22% plant: seeds (Bent 1927)	Apr.-Jun. (Lowery 1974a)	
<u>Calidris bairdii</u> Baird's sandpiper	insects, amphipods, algae (Bent 1927)	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Calidris melanotos</u> Pectoral sandpiper	insects (66%); amphipods (22.3%); algae (10.5%); also other animals, seeds (Bent 1927)	Mar.-May; Aug.-Oct. (Lowery 1974a)	
<u>Calidris alpina</u> Dunlin	small mollusks, small crustaceans, insects, marine worms, occasionally seeds (Bent 1927)	Oct.-May (Lowery 1974a)	
<u>Calidris hemantopus</u> Stilt sandpiper	animal (70%): small worms, mollusks, insects plant (30%): seeds (Bent 1927)	Apr.-May (Lowery 1974a)	
<u>Trygites subruficollis</u> Buff-breasted sandpiper	99% animal: insects, spiders; 1% plant: seeds	Mar.-May; Jul.-Oct. (Lowery 1974a)	
<u>Larus delawarensis</u> Ring-billed gull	refuse, insects (Bent 1921)	Oct.-Apr. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Columba livia</u> Rock pigeon			
<u>Zenaidura macroura</u> Mourning dove	seeds (Bent 1932)	Year-round (Lowery 1974a)	0.71-0.78/acre (Murray 1970)
<u>Columbina passerina</u> Common ground dove	small seeds, berries, insects (Bent 1932)	Oct.-May (Lowery 1974a)	
<u>Tyto alba</u> Barn owl	small mammals, birds, insects, frogs (Bent 1937)		"Blue List" Nat. Aud. Soc. (1976)
<u>Asio flammeus</u> Short-eared owl	mostly small mammals, also small birds, insects (Bent 1937)	Oct.-May (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chordeiles minor</u> Common nighthawk	insects, mostly flying (Bent 1940)	Apr.-Oct. (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Chaetura pelagica</u> Chimney swift	flying insects (Bent 1940)	Mar.-Oct. (Lowery 1974a)	
<u>Megasceryle alcyon</u> Belted kingfisher	almost wholly fish; also insects, crustaceans, mollusks, amphibians, small reptiles, birds, mice, berries (Bent 1940)	Sept.-Apr. (Lowery 1974a)	
<u>Colaptes auratus</u> Common flicker	61% animal: ants and other insects 39% plant: fruits and berries (Bent 1949)	Year-round (Lowery 1974a)	
<u>Tyrannus tyrannus</u> Eastern kingbird	mostly insects; also small fruits and berries (Bent 1942)	Mar.-Sept. (Lowery 1974a)	
<u>Tyrannus verticalis</u> Western kingbird	91% animal: insects; 9% plant: seeds (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974a)	
<u>Muscivora forficata</u> Scissor-tailed flycatcher	96% animal: insects; 4% plant: small fruits and berries, a few seeds (Bent 1942)	Apr.-May; Sept.-Oct. (Lowery 1974a)	
<u>Savornis phoebe</u> Eastern phoebe	89% animal: insects, arachnids, millipedes 11% plant: fruit, seeds (Bent 1942)	Oct.-May. (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Iridoprocne bicolor</u> Tree swallow	81% animal: insects and spiders 21% plant: seeds and berries (Bent 1942)	Sept.-May (Lowery 1974a)	
<u>Riparia riparia</u> Bank swallow	insects (Bent 1942)	Apr.-May; Jul.-Oct. (Lowery 1974a)	
<u>Hirundo rustica</u> Barn swallow	99% animal: insects; some spiders and snails (Bent 1942)	Mar.-May; Aug.-Nov. (Lowery 1974)	
<u>Petrochelidon pyrrhonota</u> Cliff swallow	99% animal: insects (Bent 1942)	Apr.-Jun. (Lowery 1974)	"Blue List" Nat. Aud. Soc. (1976)
<u>Progne subis</u> Purple martin	mostly insects, some spiders (Bent 1942)	Feb.-Aug.; nesting Apr.-Jun. (Lowery 1974)	
<u>Corvus brachyrhynchos</u> Common crow	28% animal: insects, spiders, snails, crustaceans, amphibians, birds, mammals, carrion; 72% plant: grain, beans, fruit, berries (Bent 1946)	Year-round (Lowery 1974a)	
<u>Corvus ossifragus</u> Fish crow	carrion, crustaceans, fish, bird eggs, insects; berries, tree fruits, seeds, some grain (Bent 1946)	Year-round (Lowery 1974a)	
<u>Thryothorus ludovicianus</u> Carolina wren	94% animal: insects, spiders, millipedes, sowbugs, snails, lizards, treefrogs, snakes; 6% plant: fruit, seeds, berries, mast (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus palustris</u> Marsh wren	Insects; especially Coleoptera and Diptera (Bent 1948)	Year-round (Lowery 1974a)	
<u>Cistothorus platensis</u> Sedge wren	insects, spiders (Bent 1948)	Oct.-Mar. (Lowery 1974a)	
<u>Mimus polyglottos</u> Northern mockingbird	48% animal: insects, spiders, crayfish, sowbugs, snails, lizards, small snakes; 52% plant: fruits and berries (Bent 1948)	Year-round (Lowery 1974a)	
<u>Turdus migratorius</u> American robin	40% animal: worms, mollusks, insects 60% plant: berries and fruits (Bent 1949)	Oct.-Mar. (Lowery 1974a)	
<u>Sialia sialis</u> Eastern bluebird	68% animal: insects, spiders, myriapods; 32% plant: largely wild fruit (winter) (Bent 1949)	Year-round (Lowery 1974a)	

continued

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Anthus spinoletta</u> Water pipit		Nov.-Mar. (Lowery 1974a)	
<u>Lanius ludovicianus</u> Loggerhead shrike	68% insects, 28% small vertebrates, 4% spiders (Bent 1950)	Year-round (Lowery 1974a)	"Blue List" Nat. Aud. Soc. (1976)
<u>Sturnus vulgaris</u> European starling	57% animal: mostly insects, also worms, snails, spiders, millipedes, sowbugs, carrion; 43% plant: fruits, berries, grain, seeds (Bent 1950)	Year-round (Lowery 1974a)	Introduced
<u>Geothlypis trichas</u> Common yellowthroat	mostly insects, a few seeds (Bent 1953)	Mar.-Oct. (Lowery 1974a)	
<u>Passer domesticus</u> House sparrow	68% animal; 32% plant (Bent 1958)	Year-round (Lowery 1974a)	Introduced
<u>Dolichonyx orizivorus</u> Bobolink	57% animal: insects, spiders, myriapods; 43% plant: weed seeds, grain (Bent 1958)	May (Lowery 1974a)	
<u>Sturnella magna</u> Eastern meadowlark	74% animal: insects, spiders; 26% plant: grain, seeds (Bent 1958)	Year-round (Lowery 1974a)	
<u>Sturnella neglecta</u> Western meadowlark	70% animal: insects, spiders, sowbugs, snails; 30% plant: grain, weed seeds (Bent 1958)	Oct.-Apr. (Lowery 1974a)	
<u>Agelaius phoeniceus</u> Red-winged blackbird	73% plant: fruit, grain, weed seeds; 27% animal: mostly insects, some spiders and myriapods (Bent 1953)	Year-round (Lowery 1974a)	
<u>Icterus spurius</u> Orchard oriole	mostly insects, spiders; some berries, flowers (Bent 1958)	Mar.-Aug. (Lowery 1974a)	
<u>Euphagus carolinus</u> Rusty blackbird	53% animal: insects, spiders, myriapods, crustaceans, amphibians, snails, small fish; 47% plant: grain, seeds, fruit, mast (Bent 1958)	Nov.-Apr. (Lowery 1974a)	
<u>Euphagus cyanocephalus</u> Brewer's blackbird	32% animal: insects, spiders, sowbugs, snails, egg shells; 68% plant: berries, grain, weed seeds (Bent 1958)	Nov.-Mar. (Lowery 1974a)	
<u>Quiscalus major</u> Boat-tailed grackle	insects, tadpoles, frogs, small fish, spiders (Bent 1958)	Year-round (Lowery 1974a)	
<u>Quiscalus quiscula</u> Common grackle	30% animal: insects, spiders, myriapods, crayfish, earthworms, sowbugs, reptiles, snails, fish, amphibians, birds, mice; 70% plant: grain (esp. corn), fruit, weed seeds, acorns (Bent 1958)	Year-round (Lowery 1974a)	

continued

# Appendix 6.3(44). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Moluthrus ater</u> Brown-headed cowbird	22% animal: insects; 78% plant: grain, weed seeds (Bent 1958)	Year-round (Lowery 1974a)	
<u>Guiraca caerulea</u> Blue grosbeak	68% animal: insects; 32% plant: grain, seeds, fruits (Bent 1968)	Jul.-Oct. (Lowery 1974a)	
<u>Passerina cyanea</u> Indigo bunting	insects, seeds, fruits, berries (Bent 1968)	Apr.-Oct. (Lowery 1974a)	
<u>Spiza americana</u> Dickcissel	70% animal: mostly insects; some spiders; 30% plant: weed seeds, grain (Bent 1968)	Apr.-Jul. (Lowery 1974a)	
<u>Passerculus sandwichensis</u> Savannah sparrow	8% animal: mostly insects; 92% plant: seeds (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Poocetes gramineus</u> Vesper sparrow	33% animal: mostly insects; 67% plant: seeds, grain (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Spizella passerina</u> Chipping sparrow	38% animal: mostly insects, some spiders; 62% plant: mostly grass seeds (Bent 1968)	Winter (Lowery 1974a)	
<u>Spizella pusilla</u> Field sparrow	41% animal: mostly insects; some spiders; 59% plant: grass seeds (Bent 1968)	Oct.-Apr. (Lowery 1974a)	
<u>Melospiza georgiana</u> Swamp sparrow	55% insects; 45% weed seeds (Bent 1968)	Sept.-May (Lowery 1974a)	
<u>MAMMALS</u>			
<u>Didelphis virginiana</u> Virginia opossum	insects, birds, carrion, plant material (Lowery 1974b)	Breeds in Jan.-Feb. (Lowery 1974b)	
<u>Cryptotis parva</u> Least shrew	animals	Breeds year-round (Lowery 1974b)	
<u>Myotis austroriparius</u> Southeastern myotis	insects (Lowery 1974b)	Active year-round in warm weather; mating in spring (Lowery 1974b)	

continued

Appendix 6.3(44). Continued.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Lasiurus borealis</u> Red bat	insects (Lowery 1974b)	Active year-round in warm weather; young born May-June (Lowery 1974b)	
<u>Lasiurus seminolus</u> Seminole bat	insects (Lowery 1974b)	Active year-round in warm weather; young born in June (Lowery 1974b)	
<u>Lasiurus cinereus</u> Hoary bat	insects		
<u>Dosypus novemcinctus</u> Nine-banded armadillo	insects, plant material (Lowery 1974b)	Breeds in Jul.-Aug. (Lowery 1974b)	
<u>Sylvilagus floridanus</u> Eastern cottontail	insects, plant material (Lowery 1974b)	Breeds Jul.-Aug. (Lowery 1974b)	0.38-0.39/acre (Murray 1970)
<u>Sylvilagus aquaticus</u> Swamp rabbit	green plants	Active year-round; breeds Jan.- Sept. (Lowery 1974b)	0.38-0.39/acre (Murray 1970)
<u>Oryzomys palustris</u> Marsh rice rat	plant material, insects, crustaceans, bird eggs and young (Lowery 1974b)	Breeds Mar.-Oct. (Lowery 1974b)	
<u>Reithrodontomys humulis</u> Eastern harvest mouse	almost wholly weed seeds; also grain, green vegetation (Lowery 1974b)	Active year-round, most births in Mar. and Nov. (Lowery 1974b)	
<u>Reithrodontomys fulvescens</u> Fulvous harvest mouse	weed seeds and green plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Sigmodon hispidus</u> Hispid cotton rat	plant material, bird eggs and young, insects, crayfish (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	
<u>Ondatra zibethicus</u> Common muskrat	plant material; aquatic animals (Lowery 1974b)	Breeding peaks in Nov. and Mar. (Lowery 1974b)	
<u>Rattus norvegicus</u> Norway rat	grain, garbage, other rats (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	Introduced
<u>Mus musculus</u> House mouse	omnivorous (Lowery 1974b)	Active and breeding year-round (Lowery 1974b)	Introduced

continued

# Appendix 6.3(44). Concluded.

<u>Species</u>	<u>Food</u>	<u>Seasonal Peaks of Abundance or Activity</u>	<u>Remarks</u>
<u>Myocastor coypus</u> Nutria	aquatic plants (Lowery 1974b)		
<u>Canis rufus</u> Red wolf	nutria, swamp rabbit, cottontail, rice rat, cotton rat, muskrat (Riley and McBride 1972)	Breeds Jan.-Feb.; births Mar.- Apr. (Riley and McBride 1972)	
<u>Vulpes fulva</u> Red fox	small mammals (Lowery 1974b)	Active year-round, breeds fall- winter (Lowery 1974b)	
<u>Procyon lotor</u> Northern raccoon	animals and plant material (Lowery 1974b)	Breeds Dec.-Jan. (Lowery 1974b)	
<u>Mustela vison</u> North American mink	crayfish, rodents, birds, fish, crabs, frogs (Lowery 1974b)	Active year-round births in early spring (Lowery 1974b)	
<u>Spilogale putorius</u> Spotted skunk	insects, crayfish, insects, amphibians, small rodents, carrion, fruits (Lowery 1974b)	Breeds in winter, births in early spring (Lowery 1974b)	
<u>Mephitis mephitis</u> Striped skunk	insects, crayfish, amphibians, small rodents, small amounts of plant material (Lowery 1974b)	Active year-round (Lowery 1974b)	
<u>Odocoileus virginianus</u> White-tailed deer	plant material (Lowery 1974b)	Breeds: Sept.-Mar. (Lowery 1974b)	

## Appendix 6.4 CHENIER PLAIN HYDROLOGICAL DATA AND HABITAT DATA.

### Appendix 6.4(1). Method for calculating phosphorus loading rates of Chenier Plain Basins.

The general procedure was to divide the Chenier Plain into its natural drainage basins: Vermilion Basin, Mermentau/Chenier Basin, Calcasieu Basin, Sabine Basin, and the East Bay Basin. Each basin was then subdivided into two functional components: (1) open water receiving bodies such as Sabine Lake, Vermilion Bay, etc.; and (2) the drainage area, surrounding each water body from which the runoff water is derived. The following calculations were made: (1) total discharge into the water body; (2) the phosphorus concentration for each discharge area; and (3) development of the phosphorus input loading rate which determines the probability of a receiving water body to become eutrophic. Finally, the volume of the receiving water body, its flushing rate, and the salinity distribution was used to determine the sensitivity of the water body to eutrophication. Sensitivity was expressed by the following eutrophic states: permissible, borderline, or dangerous.

The system was found to be primarily controlled by agricultural runoff, which is the land use category which will require the attention of planners. Analysis of the phosphorus input loading rate shows the eutrophic state and the significance of each nutrient source. The calculations were subject to error because of the scarcity of data. Actual discharge data were available from upstream portions of the major rivers in the study area, but were generally not available where the streams discharged into the Chenier Plain. Therefore, measurement data were extrapolated to calculate annual discharge ( $m^3/yr$ ). The phosphorus data were also spotty and were concentrated at point source discharges with little long-term data; readings at useful downstream locations were available for only a few dates per year. It was therefore necessary to classify the drainage area according to land use, and calculate the phosphorus input ( $g/yr$ ) by using loading coefficients derived from the literature and modified by empirical investigations in other parts of coastal Louisiana (Craig and Day 1977).

The total phosphorus input was divided by the total discharge to obtain an annual average P concentration loading rate ( $g/m^3/yr$ ) which was compared to a eutrophication state scale (Shannon and Brezonik 1971). The comparison allowed an evaluation of the water body on a scale of permissible, borderline, or dangerous.

#### Water Discharge Calculations

A complete survey of all discharge data source material was made for each basin. The locations and values were tabulated and the available data were evaluated. Generally, some data from measurement stations upstream from the basin were available, but few empirical measurements of drainage area-related discharge were available. Therefore, discharge was calculated

from run-off values, in acre-ft/mi<sup>2</sup>, multiplied by the total drainage area for that particular bayou, river, or stream to obtain a total discharge (m<sup>3</sup>/yr). Areas were obtained from Sloss's inventory of drainage areas (Sloss 1971). The data for each basin are listed in tables 6.4(1a) to 6.4(1d). They show the discharge area, the calculated run-off value, and the discharge in ft<sup>3</sup>/sec and m<sup>3</sup>/yr. For East Bay, because of lack of data, published run-off values were used with drainage areas to obtain a total discharge.

#### Phosphorus Discharge Calculations

Phosphorus (P) data were so scarce that P input according to land use was calculated. Sample calculations for point source input were made and in all five cases the P input calculated from land use was at least double that measured from known point source inputs. It was therefore accepted that the land use method represented worst case conditions.

Land use by basin was determined in acres from data published by the Louisiana State Planning Office (Louisiana State Planning Office 1975). The dated acreage of each land use category was multiplied by the appropriate phosphorus loading coefficient to obtain the phosphorus inputs. These were summed to produce a total basin annual P input in g/yr. This divided by the water discharge gave a total concentration in g/m<sup>3</sup>/yr (Tables 6.4(2a) to 6.4(2e). This concentration was compared with a three level index of eutrophic state (Shannon and Brezonik 1971): permissible (P 0.12 g/m<sup>3</sup>) meaning the amount of total P is permissible with no tendency towards eutrophication; borderline (0.12 g/m<sup>3</sup> < P < 0.22); and dangerous (P < 0.22 g/m<sup>3</sup>) meaning the amount of total P is at a level that this receiving body is eutrophic.

Appendix 6.4(1a). Sabine Basin water discharge calculations.

Location	Area drained m <sup>2</sup>	Average run off acre ft/mi <sup>2</sup>	Discharge m <sup>3</sup> /yr
Neches River	10,011	522	64.4 x 10 <sup>8</sup>
Taylor Bayou	530	600 (est.)	3.92 x 10 <sup>8</sup>
Sabine River	9,760	640	77.0 x 10 <sup>8</sup>
East Drainage (Johnson Bay)	643 (calc.)	550 (est.)	4.36 x 10 <sup>8</sup>
Total			149.68 x 10 <sup>8</sup>

Appendix 6.4(lb). Calcasieu Basin water discharge calculations.

Location	Area drained mi <sup>2</sup>	Average run off acre ft/mi <sup>2</sup>	Mean ft <sup>3</sup> /sec	Discharge m <sup>3</sup> /yr
Kinder	1,700	1,061 (calc.)	2,493	22.25 x 10 <sup>8</sup>
Oberlin	753	1,081 (calc.)	1,125	10.0 x 10 <sup>8</sup>
7346021	3,129 (Sloss)	1,070	4,624	41.2 x 10 <sup>8</sup>
GIWW at Lake	3,396	1,070	5,019.18	44.8 x 10 <sup>8</sup>
Calculated at Gulf of Mexico	376	1,070	555.72	4.96 x 10 <sup>8</sup>

Appendix 6.4(lc). Mermentau/Chenier Basin water discharge calculations

Location	Area drained mi <sup>2</sup>	Average run off acre ft/mi <sup>2</sup>	Discharge ft <sup>3</sup> /sec	Discharge m <sup>3</sup> /yr
GIWW and Mermentau	1,799.40			
Bayou Des Cannes Eunice 70150 USGS	131	1,392 (calc.)	252 1938-1970	
Bayou Nezpique (Basile) 70075 USGS	527	1,039 (calc.)	747	
Bayou Nezpique (Jennings) 70120 USGS				
Bayou Serpent 73100, 73200, 73150 USACE				
Mermentau River (Vermilion) 70375 USACE				
Mermentau River Lake Arthur 70525, 70530				
Bayou Wikoff (Rayne) 70525 COE				
Bayou Que de Tortue USGS 70440, 70450 USACE	158	4,270 on April 22		
Mermentau River Lacassine Ref. 70600 USACE				
Bayou Plaquemine Brule near Crowley 0220 USGS	252	1,565	545 (1942-1947)	
Lacassine near Lake Arthur USGS Gauge # 1 USACE	299			

continued

## Appendix 6.4(1c). Concluded.

Location	Area drained mi <sup>2</sup>	Average run off acre ft/mi <sup>2</sup>	Discharge ft <sup>3</sup> /sec	Discharge m <sup>3</sup> /yr
Discharge from point 361	97	1,150	154	1.38 x 10 <sup>8</sup>
Mermentau River at GIWW	1,799			
Mermentau River at Bayou Quede Tortue	1,702	1,200 (est.)	2,821	25.2 x 10 <sup>8</sup>
Bayou Que de Tortue at Mermentau River	292	1,565 (calc.)	631	5.64 x 10 <sup>8</sup>
Lacassine at GIWW	398	1,100 (est.)	604	5.40 x 10 <sup>8</sup>
Mermentau River Basin above GIWW	2,780	940		32.22 x 10 <sup>8</sup>
Difference attri- buted to Lake Misere etc.	388	1,150 (est.)	616	5.51 x 10 <sup>8</sup>
Difference from GIWW to Catfish Point	721	1,150 (est.)	1,145	10.3 x 10 <sup>8</sup>
Difference from GIWW to Gulf	1,040	1,150 (est.)	1,652	14.8 x 10 <sup>8</sup>
Lacassine and Lake Misere Input		add 2 + 4m		10.91 x 10 <sup>8</sup>

Appendix 6.4(1d). Vermilion Basin water discharge calculations.

Location	Area drained mi <sup>2</sup>	Average run off acre ft/mi <sup>2</sup>	Discharge ft <sup>3</sup> /sec	Discharge m <sup>3</sup> /yr
Ruth Canal			84.1 mean (1976-1977)	1.15 x 10 <sup>8</sup>
Bayou Teche				
Vermilion River Perry 67830				
Vermilion River Abbeville 67675				
Coulee Kennys Abbeville 67750				
Vermilion River at Lafayette Surry Bridge 67373	288 at mouth of Coulee des Poches	1,573	626 mean (1976-1977)	
Bayou Teche Keystone Lock and Dam			457 mean 1976-1977 499 430 1959-1970	4.46 x 10 <sup>8</sup>
Bayou Fuselier			193	
Bayou Teche at Arnaudville	1,531	383.5	811 USGS	
Bayou Teche below Arnaudville			582	
Vermilion River at Long Bridge Rte. 94			175	
Vermilion River at Pinhook Bridge			665	

continued

Appendix 6.4(1d). Concluded.

Location	Area drained mi <sup>2</sup>	Average run off acre ft/mi <sup>2</sup>	Discharge ft <sup>3</sup> /sec	Discharge m <sup>3</sup> /yr
Vermilion River at Milton Bridge Rte. 921	406	1,497	840	
Teche at Arnaudville			780	
Vermilion River at GIWW	561	1,497 (calc.)		
Area from Avery Canal to Vermilion Basin Boundary including GIWW, Schooner Bayou, Six Mile Canal, etc.	300	1,300 (est.)		

Appendix 6.4(2a). Phosphorus input, discharge, and total P concentration for eutrophication sensitivity analysis, East Bay Basin.

Category	Drainage area (m <sup>2</sup> x 10 <sup>8</sup>	Phosphorus loading coefficients (g/m <sup>3</sup> /yr)	Phosphorus input (gr/yr)	Comments
Cultural				
Urban	0.0115	0.11	0.0013 x 10 <sup>8</sup>	Includes point source
Industrial	0	0.01	0.0	
Agricultural				
Rice	0	0.25	0.0	Pasture separated because it is major use
Non-rice	0.5481	0.53	0.2904 x 10 <sup>8</sup>	
Pasture	1.3774	0.018	0.0247 x 10 <sup>8</sup>	
Natural				
Forest	0.0215	0.008	0.0002 x 10 <sup>8</sup>	
Lake	2.3388	0.044	0.1029 x 10 <sup>8</sup>	
Baron	0.7260	0.006	0.0044 x 10 <sup>8</sup>	
Wetland	2.1451	0.0	0.0	
Municipal waste	--	--	--	Insignificant
Industrial waste	--	--	--	Insignificant
Total	7.1684			
Total p (g/year) x 10 <sup>8</sup>			0.4239	
Total discharge (m <sup>3</sup> /year) x 10 <sup>8</sup>				5.22
Total concentration (g/m <sup>3</sup> /year)				0.0812
Eutrophic state	P = Permissible      P<0.12 B = Borderline      0.12<P>0.22 D = Dangerous      P>0.22			P
			g/m <sup>3</sup> /year	

Appendix 6.4(2b). Phosphorus input, discharge, and total P  
concentration for eutrophication sensitivity  
analysis, Sabine Basin

Category	Drainage area (m <sup>2</sup> x 10 <sup>8</sup> )	Phosphorus loading coefficients (g/m <sup>3</sup> /yr)	Phosphorus input (gr/yr)	Comments
<b>Cultural</b>				
Urban	2.195	0.11	0.2414 x 10 <sup>8</sup>	Includes point source Includes point source
Industrial	0.090	0.01	0.0009 x 10 <sup>8</sup>	
Agricultural				
Rice	12.840	0.25	3.2087 x 10 <sup>8</sup>	
Non-rice	1.430	0.53	.7560 x 10 <sup>8</sup>	
<b>Natural</b>				
Forest	48.044	0.008	0.3843 x 10 <sup>8</sup>	
Lake	7.097	0.044	0.3122 x 10 <sup>8</sup>	
Baron	0.179	0.006	0.0011 x 10 <sup>8</sup>	
Wetland	10.543	0.00	0.00	
Municipal waste	--	--	--	Included above
Industrial waste	--	--	--	Included above
Total	82.438			
Total p (g/year) x 10 <sup>8</sup>			4.9046	
Total discharge (m <sup>3</sup> /year) x 10 <sup>8</sup>				149.58
Total concentration (g/m <sup>3</sup> /year)				0.0328
Eutrophic state	P = Permissible B = Borderline D = Dangerous		P < 0.12 0.12 < P < 0.22 P > 0.22	g/m <sup>3</sup> /year  P

Appendix 6.4(2c). Phosphorus input, discharge, and total P  
concentration for eutrophication sensitivity  
analysis, Calcasieu Basin

Category	Drainage Area (m <sup>2</sup> x 10 <sup>8</sup>	Phosphorus Loading coefficients (g/m <sup>3</sup> /yr)	Phosphorus Input (gr/yr)	Comments
Cultural				
Urban	2.800	0.11	0.3080 x 10 <sup>8</sup>	Includes point source Includes point source
Industrial	0.252	0.01	0.0025 x 10 <sup>8</sup>	
Agricultural				
Rice	28.617	0.25	7.1544 x 10 <sup>8</sup>	
Non-rice	7.607	0.53	4.0378 x 10 <sup>8</sup>	
Natural				
Forest	54.653	0.008	0.4372 x 10 <sup>8</sup>	
Lake	23.127	0.044	1.0176 x 10 <sup>8</sup>	
Baron	0.228	0.006	0.0014 x 10 <sup>8</sup>	
Wetland	19.949	0.0	0.0	
Municipal waste	--	--	--	Included above
Industrial waste	--	--	--	Included above
Total	137.233			
Total p (g/year) x 10 <sup>8</sup>			12.9589	
Total discharge (m <sup>3</sup> /year) x 10 <sup>8</sup>				49.75
Total concentration (g/m <sup>3</sup> /year)				0.26
Eutrophic state	P = Permissible B = Borderline D = Dangerous		P<0.12 0.12<P>0.22 P>0.22	g/m <sup>3</sup> /year  D

Appendix 6.4(2d). Phosphorus input, discharge, and total P  
concentration for eutrophication sensitivity  
analysis, Mermentau/Chenier Basin

Category	Drainage area (m <sup>2</sup> x 10 <sup>8</sup> )	Phosphorus loading coefficients (g/m <sup>3</sup> /yr)	Phosphorus input (gr/yr)	Comments
<b>Cultural</b>				
Urban	1.9416	0.11	0.2136 x 10 <sup>8</sup>	Includes point source
Industrial	0.1179	0.01	0.0011 x 10 <sup>8</sup>	Includes point source
<b>Agricultural</b>				
Rice	29.4825	0.25	7.3706 x 10 <sup>8</sup>	
Non-rice	3.6429	0.53	1.9312 x 10 <sup>8</sup>	
<b>Natural</b>				
Forest	9.8395	0.008	0.0787 x 10 <sup>8</sup>	
Lake	25.5905	0.044	1.1259 x 10 <sup>8</sup>	
Baron	0.1144	0.006	0.0007 x 10 <sup>8</sup>	
Wetland	24.6569	0.0	0.0	
Municipal waste	--	--	--	Included above
Industrial waste	--	--	--	Included above
<b>Total</b>	95.3862			
<b>Total p</b> (g/year) x 10 <sup>8</sup>			10.7218	
<b>Total discharge</b> (m <sup>3</sup> /year) x 10 <sup>8</sup>				53.42
<b>Total concentration</b> (g/m <sup>3</sup> /year)				0.2007
<b>Eutrophic state</b>				
	P = Permissible	P < 0.12		
	B = Borderline	0.12 < P < 0.22	g/m <sup>3</sup> /year	B
	D = Dangerous	P > 0.22		

Appendix 6.4(2e). Phosphorous input, discharge, and total P concentration for eutrophication sensitivity analysis, Vermilion Basin.

Category	Drainage area (m <sup>2</sup> x 10 <sup>8</sup> )	Phosphorus loading coefficients (g/m <sup>3</sup> /yr)	Phosphorus input (gr/yr)	Comments
Cultural				
Urban	1.0821	0.11	0.1192 x 10 <sup>8</sup>	Includes point source Includes point source
Industrial	0.0335	0.01	0.0003 x 10 <sup>8</sup>	
Agricultural				
Rice	2.6042	0.25	0.6511 x 10 <sup>8</sup>	
Non-rice	4.8354	0.53	2.5623 x 10 <sup>8</sup>	
Natural				
Forest	1.3829	0.008	0.0111 x 10 <sup>8</sup>	
Lake	11.7732	0.044	0.5180 x 10 <sup>8</sup>	
Baron	0.0885	0.006	0.0005 x 10 <sup>8</sup>	
Wetland	6.7723	0.0	0.0	
Municipal waste	--	--	--	Included above
Industrial waste	--	--	--	Included above
Total	28.5721			
Total P (g/year) x 10 <sup>8</sup>			3.8625 x 10 <sup>8</sup>	
Total discharge (m <sup>3</sup> /year) x 10 <sup>8</sup>				15.898
Total concentration (g/m <sup>3</sup> /year)				0.24
Eutrophic state	P = Permissible B = Borderline D = Dangerous		P<0.12 0.12<P>0.22 P>0.22	g/m <sup>3</sup> /year D

## Appendix 6.4(3). Techniques employed in habitat and canal inventory.

### Habitats

The purpose of the inventory was to locate and determine the total areas occupied by each of the fourteen habitats. In addition, the inventory was to assess any temporal changes in the distribution and amount of the habitats and features.

### Sources

The entire area is mapped by the U.S.G.S. at 1:24,000 scale. This represented the best resolution of published maps that were easily accessible. Where available the U.S.G.S. 1:24,000 orthophoto sheets were used. Approximately 60% of the area was covered by this set. For the remaining area the latest edition of U.S.G.S. 1:24,000 topographic maps were used as a base.

In mapping the present habitats in the 1:24,000 base the following remote sensing coverage was used:

1. 1969 U.S.A.C.E. uncontrolled photo mosaics.
2. 1974 U.S.G.S. orthophoto quadrangle sheets.
3. 1974 NASA High Altitude Color IR, missions 174, 191, 194, 197, and 289.

Differentiation between marsh types was based on Chabreck et al. (1968), Chabreck (1972), and the Texas Bureau of Economic Geology (1976). Updating those previous works was accomplished through low altitude overflights. The overflights along with ground reconnaissance served to evaluate the remote sensing interpretation.

Since field work was conducted in 1976 to 1977 and aerial coverage varied from 1969 to 1974, it is impossible to put an absolute date on the finalized habitat map. A reference date was needed in order to determine temporal changes in habitat distribution. Over 90% of the area was covered by a combination of color IR missions and the U.S.G.S. or the photo quads for the year 1974. Thus, except for the differentiation between marsh types the finalized habitat map represents habitats in 1974.

### Areas

Areas of 1974 habitat units were derived from the 1:24,000 scale maps using the point-counting (grid sampling) method developed by Gagliano and van Beek (1970). This method was compared to digitizing areas by means of a Calma Digitizer (computerized planimeter) by Gane (in Adams et al. 1976)

for areas in southeast Louisiana and once again by participants of this project for selected areas in the Chenier Plain. A comparison of the two methods indicates that results were within 3% of each other for the area covered by one 1:24,000 U.S.G.S. topographic sheet.

#### Habitat Changes

Having established a habitat base map for the year 1974, a second habitat map representing some time in the past was sought in order to determine habitat changes through time. The availability of air photo coverage was the limiting factor in determining any habitat changes.

Examination of black and white aerial coverage revealed that 1952 was the earliest year in which sufficient coverage was available. This coverage, flown by the United States Navy, covered the entire Louisiana portion of the Chenier Plain and approximately 50% of the Texas portion. Habitat changes by basin, therefore, were measured from 1952 to 1974 with the exception of the East Bay area where changes were measured from 1954 to 1974.

In addition to the above coverage, 1953 to 1954 1:72,000 scale air photo mosaics and ~ 1:20,000 scale air photos mission flown by Edgar Tobin Aerial Services for the Humble Oil and Refining Company covering coastal Louisiana were used as a supplement. United States Navy air photos of the Texas coast flown in 1961 to 1962 was also used as supplemental coverage.

Variability in scale of the black and white air photos was significant. In mapping habitat changes, therefore, the areas of change were plotted on a scale of 1:24,000. These areas of change were then computed using the Calma Digitizer.

#### Shoreline Changes

Shoreline changes were represented in the habitat change matrices by either a change from Nearshore Gulf to Marsh (indicating shoreline advance) or from Marsh to Nearshore Gulf (shoreline retreat). While the shoreline may be advancing or retreating, it was not felt that the area of the beach changed significantly; rather the change was at the expense of the habitat either seaward or landward of the beach, depending on the direction of movement of the shoreline.

These changes were determined by use of unpublished data (Morgan, Louisiana State University) for the Louisiana coast and Seelig and Sorensen's (1973) data for the Texas coast. The former source included changes between 1954 and 1969. Thus, shoreline changes for the Louisiana portion of the Chenier Plain are in a close time frame with other habitat changes. The latter source, however, lists shoreline changes from the latter part of the nineteenth century to the early to mid 1960's. The data are reported as linear changes per year. The long time period covered gives one a misleading nature of the change, (i.e., most of the change could have occurred over a much shorter time period). As these were the only data available they were used by taking the reported linear change per year and multiplying by the time period covered for other habitat changes. For the East Bay area this was 22 years (1954 to 1974) and for the Texas portion of the Sabine Basin 24

## Appendix 6.4(3). Continued

years (1952 to 1974). The linear distances were converted to area by multiplying by the sum of half of the distance to the next data point to the west and to the east.

### Canals

Canal length was digitized by type of canal. Area occupied by canals could not be digitized due to resolution problems in determining widths at 1:24,000 scale. An average width value for each type of canal was determined by general field observations, and a limited amount of U.S.A.C.E. dredge data. These width values, along with the digitized length values, were used in computing canal areas.

Canal types were defined according to their initial intended purpose. This was necessary in order to place a canal under a single category, although it may have multiple uses. For example, Stack's canals in and around the Sabine National Wildlife Refuge were constructed for trappers. This places these canals under second order navigation canals although the resulting spoil is also used for wildlife management impoundment. Definitions of the various canal types are listed below:

#### First Order Navigation Canals

- those major canals dredged and maintained to facilitate both interstate and intrastate navigation.

#### Second Order Navigation Canals

- canals dredged or dug to a low passage of small craft, or short deeper water spurs to allow movement of large craft from a first order canal to an industrial site.

#### Agricultural, Industrial, and Urban Drainage Canals (Wetland and Upland)

- canals whose primary purpose is to convey water to or from a site, or canals which were dug to isolate an impounded agricultural area.

#### Agricultural Access Canals and Borrow Pits

- canals and typically staggered borrow pits flanking an embankment which is used solely for the purpose of cattle access.

#### Oil Activity Canals

- canals dredged for exploration and production of oil and gas.

Canals dredged principally for a water-based oil/gas extractive operations were listed as oil field navigation canals. Canals and borrow pits flanking embankments which extended into the marsh to enable a land-based operation were classified as oil field embankment canals and borrow pits.

Transportation Embankments or Utility Canals and Borrow Pits

- dredged canals and borrow pits flanking either a raised, continuous artificial embankment constructed for movement across a wetland area or a canal flanking a powerline system across a wetland. Not all powerlines have canals associated with them; however, there are a number of canals of this type in the Sabine-Neches river valley.

Pipeline Canals

- all dredged and flooded pipeline routes. Very few open canals exist, and most of the lengths are actually pipelines which have once been backfilled but are now flooded due to erosion or compaction.

Wildlife Management Impoundment Canals

- canals dredged for navigation, drainage, or impoundment of areas specifically used in wildlife management programs, whether public or private.

Others

- canals and embankments not fitting into one of the above categories.
-

Appendix 6.4(4). Habitat area (ha)<sup>1</sup> in 1974 by basin, in the Chenier Plain Region.

Habitat Type	VERMILION		CHENIER RIDGE		MERMENTAU		CALCASIEU		SABINE		EAST BAY	
	Area	% <sup>2</sup>	Area	% <sup>2</sup>	Area	% <sup>2</sup>	Area	% <sup>2</sup>	Area	% <sup>2</sup>	Area	% <sup>2</sup>
Nearshore Gulf	115,599	--	100,658	--	0	--	40,243	--	84,211	--	30,540	--
Inland Open Water	18,977	25.2	5,638	5.9	61,497	22.9	40,956	30.3	47,223	16.2	26,553	32.6
Salt Marsh	1,526	2.0	5,836	6.2	0	0	2,145	1.6	4,610	1.6	3,038	3.7
Brackish Marsh	13,603	18.1	14,222	15.0	0	0	26,330	19.4	38,443	13.2	8,247	10.1
Intermediate Marsh	14,797	19.6	8,184	8.6	5,519	2.1	20,412	15.1	29,788	10.2	6,143	7.5
Fresh Marsh	6,105	8.1	0	0	73,533	27.4	5,916	4.4	28,531	9.8	2,246	2.8
Impounded Marsh	7,962	10.6	48,834	51.5	49,399	18.4	9,751	7.2	41,212	14.1	4,623	5.7
Beach	396	0.5	1,544	1.6	0	0	844	0.6	2,124	0.7	1,256	1.5
Agriculture	2,056	2.7	671	0.7	36,366	13.6	7,268	5.4	10,171	3.5	3,766	4.6
Pasture	3,318	4.4	2,751	2.9	23,069	8.6	5,970	4.4	39,363	13.5	15,654	19.2
Ridge	2,655	3.5	6,708	7.1	12,634	4.7	11,370	8.4	19,391	6.6	7,003	8.6
Urban	199	0.3	401	0.4	1,595	0.6	2,277	1.7	19,088	6.5	2,577	3.2
Swamp Forest	464	0.6	0	0	1,660	0.6	715	0.5	3,699	1.3	0	0
Upland Forest	3,253	4.3	0	0	2,792	1.0	1,430	1.1	8,125	2.8	264	0.3
	190,910		195,447		268,064		175,627		375,979		111,910	

<sup>1</sup>1 hectare (ha) = 2.47 acres (a)

<sup>2</sup>Of inland area (excludes Nearshore Gulf).

Appendix 6.4(5). Net habitat changes 1952 to 1974<sup>1</sup>  
in Chenier Plain basins (ha)

Habitat type	VERMILION		CHENIER RIDGE		MERMENTAU		CALCASIEU		SABINE		EAST BAY	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
1. Nearshore Gulf	200	0.5	927	0.9	0	0	-161	-0.4	548	0.7	25	0.1
2. Inland Open Water	1,485	8.5	498	9.7	3,873	6.7	13,107	47.1	8,619	22.3	444	1.7
3. Natural Marsh <sup>2</sup>	-6,800	-15.9	-13,727	-32.6	-20,132	-20.3	-18,832	-25.6	-20,405	-16.8	-1,380	-6.6
4. Impounded Marsh	2,673	50.5	10,876	28.7	10,767	27.6	3,559	57.5	9,363	29.4	874	23.3
5a. Natural Ridge	-154	-12.7	-475	-12.6	-145	-3.5	-345	-4.1	-58	-0.6	-70	-1.5
5b. Spoil	1,099	222.5	1,441	72.8	1,000	13.1	848	34.4	937	11.2	40	1.8
6a. Rice	551	308.0	29	76.3	2,238	7.3	1,300	29.5	-945	-9.4	-386	-9.8
6b. Non-Rice Agric.	451	51.5	196	48.2	877	34.9	214	16.0	20	1.9	68	51.9
7. Pasture	676	25.6	120	4.6	1,893	8.9	-352	-5.6	-1,277	-3.1	121	0.8
8. Urban	87	77.7	152	61.0	52	3.4	1,428	168.0	3,449	22.1	278	12.1
9. Beach	0	0	-37	-2.3	0	0	-65	-7.1	0	0	-14	-1.1
10. Upland Forest	-177	-5.2	0	0	-289	-9.4	-530	-27.0	-251	-3.0	0	0
11. Swamp Forest	-91	-16.4	0	0	-134	-7.5	-171	-19.3	0	0	0	0

<sup>1</sup>For East Bay changes are from 1954 to 1974.

<sup>2</sup>No attempt was made to separate natural marsh types such as salt, brackish, intermediate, and fresh.

Appendix 6.4(6). Habitat changes (ha) matrix for the entire Chenier Plain, 1952 to 1974\*

FROM TO	Open Nearshore		Natural		Impounded		Natural		Ridge		Spoil		Pasture		Rice		Urban		Upland		Beach		Swamp		Non-Rice		TOTAL
	Water	Gulf	Marsh	Marsh	Marsh	Marsh	Marsh	Marsh	Ridge	Ridge	Spoil	Spoil	Pasture	Pasture	Rice	Rice	Urban	Urban	Upland	Upland	Beach	Beach	Swamp	Swamp	Non-Rice	Non-Rice	
Open Water			41		1,012						375						9										1,437
Nearshore Gulf			367																								367
Natural Marsh	28,703	1,903			40,242						5,354		1,395		3,060		1,027										81,684
Impounded Marsh	106												243		2,527		206								60		3,142
Natural Ridge	9										21		480		510										227		1,247
Spoil	125												140				171										436
Pasture	204										16				4,889		2,501								1,062		8,672
Rice													6,788				390								836		8,014
Urban		3																								3	
Upland Forest	28										8		394		194		546								77		1,247
Beach	26										11						79										116
Swamp Forest	262										16		50		68												396
Non-Rice Agriculture																											436
TOTAL	29,463	1,906	408		41,254				0	5,801	9,853		11,311		4,939		0		0		0		0		2,262		107,197

Area Gained

\* For five of the six basins. For the East Bay Basin it covers the period 1954-1974. Reading the habitats on the left hand margin and moving across the table provides one with habitat loss statistics. Using the habitats listed across the top and reading down the columns provides statistics of habitat area gains.

Appendix 6.4(7a). Habitat changes (ha) matrix for East Bay Basin, 1954 to 1974.

From \ To		Open water	Nearshore Gulf	Natural marsh	Impounded marsh	Natural ridge	Spoil	Pasture	Rice	Urban	Upland forest	Beach	Swamp forest	Non-rice agric	Total
Open Water							25								25
Nearshore Gulf				43											43
Natural Marsh		426	65		874		58								1,423
Impounded Marsh															0
Natural Ridge										70					70
Spoil		43													43
Pasture									1,430	197				68	1,695
Rice								1,816							1,816
Urban															3
Upland Forest															0
Beach										14					14
Swamp Forest															0
Non-rice agric															0
Total		469	68	43	874	0	83	1,816	1,430	281	0	0	0	68	5,132

Appendix 6.4(7b). Habitat changes (ha) matrix for the Sabine Basin, 1952 to 1974.

FROM \ TO		Open water	Nearshore Gulf	Natural marsh	Impounded marsh	Natural ridge	Spoil	Pasture	Rice	Urban	Upland forest	Beach	Swamp forest	Non-rice agric	Total
Open Water							73			9					82
Nearshore Gulf				127											127
Natural Marsh		8,413	675		9,569	1,098	122	199	456						20,532
Impounded Marsh									206						206
Natural Ridge		9							29					20	58
Spoil		75							159						234
Pasture		204							1,495	1,962					3,661
Rice								2,262		377					2,639
Urban															0
Upland Forest										251					251
Beach															0
Swamp Forest															0
Non-rice agric															0
Total		8,701	675	127	9,569	0	1,171	2,384	1,694	3,449	0	0	0	20	27,790

Appendix 6.4(7c). Habitat changes (ha) matrix for  
Calcasieu Basin, 1952 to 1974.

FROM \ TO	Open water	Nearshore Gulf	Natural marsh	Impounded marsh	Natural ridge	Spoil	Pasture	Rice	Urban	Upland forest	Beach	Swamp forest	Non-rice agric	Total
Open Water			272		28									300
Nearshore Gulf			197											197
Natural Marsh	13,118	36		3,392	899		119	930	534					19,029
Impounded Marsh	106													106
Natural Ridge					21		21		262				41	345
Spoil							140							140
Pasture					16			448	262				199	925
Rice							106						34	140
Urban														0
Upland Forest	28				8		166	23	295				10	530
Beach									65					65
Swamp Forest	155				16									171
Non-rice agric							21	39	10					70
Total	13,407	36	197	3,665	0	988	573	1,440	1,428	0	0	0	284	22,018

Appendix 6.4(7d). Habitat changes (ha) matrix for the Mermentau Basin, 1952 to 1974.

FROM \ TO	Open water	Nearshore Gulf	Natural marsh	Impounded marsh	Natural ridge	Spoil	Pasture	Rice	Urban	Upland forest	Beach	Swamp forest	Non-rice agric	Total
Open Water														0
Nearshore Gulf														0
Natural Marsh	3,850		12,797		1,019	1,154	1,312						20,132	
Impounded Marsh					243	1,727							60 2,030	
Natural Ridge					102								43 145	
Spoil	7								12					19
Pasture								1,369	27				426 1,822	
Rice							1,844		13				576 2,433	
Urban														0
Upland Forest						118	171						289	
Beach														0
Swamp Forest	16					50	68						134	
Non-rice agric						204	24						228	
Total	3,873	0	0	12,797	0	1,019	3,715	4,671	52	0	0	0	1,105 27,232	

Appendix 6.4(7e). Habitat changes (ha) matrix for  
Chenier Basin, 1952 to 1974.

FROM \ TO	Open water	Nearshore Gulf	Natural marsh	Impounded marsh	Natural ridge	Spoil	Pasture	Rice	Urban	Upland forest	Beach	Swamp forest	Non-rice agric	Total
Open Water			41	740		249							1,030	
Nearshore Gulf													0	
Natural Marsh	1,502	927		10,136		1,181			22				13,768	
Impounded Marsh													0	
Natural Ridge							321		99				55	475
Spoil													0	
Pasture								67	31				204	302
Rice													38	38
Urban													0	0
Upland Forest													0	0
Beach	26					11								37
Swamp Forest													0	0
Non-rice agric							101							101
Total	1,528	927	41	10,876	0	1,441	422	67	152	0	0	0	297	15,751

Appendix 6.4(7f). Habitat changes (ha) matrix for the Vermilion Basin, 1952 to 1974.

FROM \ TO	Open water	Nearshore Gulf	Natural marsh	Impounded marsh	Natural ridge	Spoil	Pasture	Rice	Urban	Upland forest	Beach	Swamp forest	Non-rice agric	Total
Open Water														0
Nearshore Gulf														0
Natural Marsh	1,394	200		3,473		1,099		619	15					6,800
Impounded Marsh								800						800
Natural Ridge							36		50				68	154
Spoil														0
Pasture								80	22				165	267
Rice							760						188	948
Urban														0
Upland Forest							110						67	177
Beach														0
Swamp Forest	91													91
Non-rice agric							37							37
Total	1,485	200	0	3,473	0	1,099	943	1,499	87	0	0	0	488	9,274

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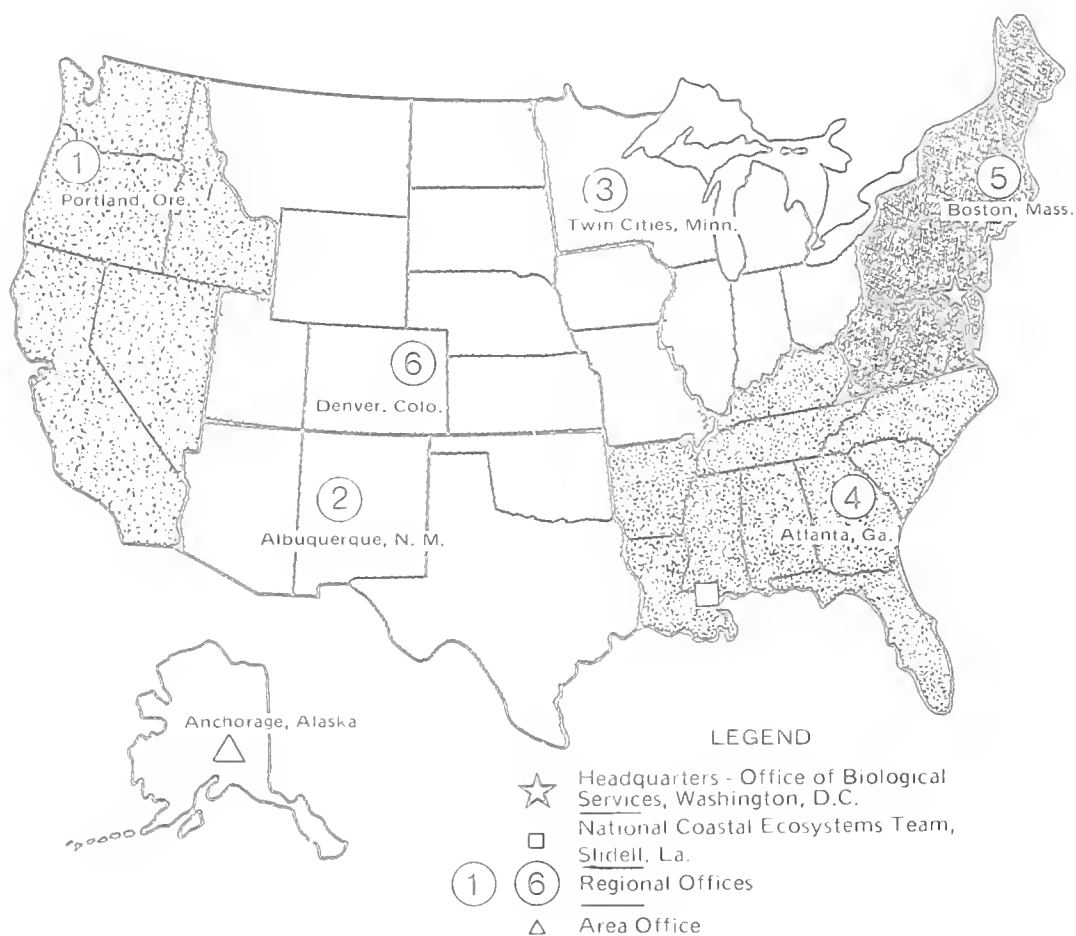
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